

LPDES PERMIT NO. LA0003115, AI No. 2418

LPDES FACT SHEET and RATIONALE
FOR THE DRAFT LOUISIANA POLLUTANT DISCHARGE ELIMINATION SYSTEM
(LPDES) PERMIT TO DISCHARGE TO WATERS OF LOUISIANA

- I. **Company/Facility Name:** ConocoPhillips Company
Alliance Refinery
Post Office Box 176
Belle Chasse, LA 70037
- II. **Issuing Office:** Louisiana Department of Environmental Quality
(LDEQ)
Office of Environmental Services
Post Office Box 4313
Baton Rouge, Louisiana 70821-4313
- III. **Prepared By:** Jenniffer Sheppard
Industrial Permits Section
Water Permits Division
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Date Prepared: September 23, 2008

IV. **Permit Action/Status:**A. **Reason For Permit Action:**

Proposed reissuance of an existing Louisiana Pollutant Discharge Elimination System (LPDES) permit for a 5-year term following regulations promulgated at LAC 33:IX.2711/40 CFR 122.46*.

- * In order to ease the transition from NPDES to LPDES permits, dual regulatory references are provided where applicable. The LAC references are the legal references while the 40 CFR references are presented for informational purposes only. In most cases, LAC language is based on and is identical to the 40 CFR language. 40 CFR Parts 401, 405-415, and 417-471 have been adopted by reference at LAC 33:IX.4903 and will not have dual references. In addition, state standards (LAC 33:IX.Chapter 11) will not have dual references.

LAC 33:IX Citations: Unless otherwise stated, citations to LAC 33:IX refer to promulgated regulations listed at Louisiana Administrative Code, Title 33, Part IX.

40 CFR Citations: Unless otherwise stated, citations to 40 CFR refer to promulgated regulations listed at Title 40, Code of Federal Regulations in accordance with the dates specified at LAC 33:IX.2301, 4901, and 4903.

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- B. NPDES permit - NPDES permit effective date: N/A
NPDES permit expiration date: N/A
EPA has not retained enforcement authority.
- C. LPDES permit - LPDES permit effective date: January 1, 2004
LPDES permit expiration date: December 31, 2008
- D. Application received on June 27, 2008

V. Facility Information:

- A. Location - 15551 Louisiana Highway 23, 12 miles south of Belle Chasse in Plaquemines Parish. The geographical coordinates of the front gate are Latitude 29°40'48" and longitude 89°58'51".
- B. Applicant Activity -

According to the application, ConocoPhillips Company, Alliance Refinery, is an existing petroleum refinery that processes 260,000 barrels per day of crude oil. Major products include propane, diesel fuel, gasoline, jet fuel, carbon black feed stock, benzene, xylene, naphtha, toluene, fluid catalytic cracking charge stock, residual fuels, and petroleum coke.

ConocoPhillips Company's Alliance Refinery discharges include process wastewater and process area stormwater, cooling tower blowdown, boiler blowdown, ion exchange resin bed backwash water, ballast water, desalter washwater, miscellaneous utility wastewater, stormwater from construction activities, compressor condensate, hydrostatic test water, general washdown water, steam condensate, fire systems test and training water, eyewash/safety shower water, sanitary wastewater, once through non-contact cooling water, non-process area stormwater runoff, clarifier underflow stream from the raw river water intake clarification system, and sand filter backwash water (Outfall 001), low contamination potential excess stormwater runoff from non-process areas, post first flush process area stormwater (rainfall in excess of one inch within in a 24-hour period), general washdown water, steam condensate, fire systems test and training water, and eyewash/safety shower water from the Central Lift Station (Outfall 002), and low contamination potential excess stormwater runoff from non-process areas, general washdown water, steam condensate, fire systems test and training water, and eyewash/safety shower water from the North and South Lift Stations (Outfalls 003 and 004).

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- C. Technology Basis - (40 CFR Chapter 1, Subchapter N/Parts 401, 405-415, and 417-471 have been adopted by reference at LAC 33:IX.4903)

Guideline

Reference

Refinery Guidelines

40 CFR 419

Subpart B Cracking Subcategory

Feedstock rate to Topping Unit(s), 1000 bbl/day, Process Unit Rates,
 1000 bbl/day:

260

Individual Processes

1000 bbl/day

Crude Process:

Atmospheric Distillation

260

Vacuum Crude Distillation

101

Crude Desalting

260

Cracking and Coking Process:

Fluid Catalytic Cracking

110

Delayed Coking

30

Product Hydrotreating

160

Reforming and Alkylation Process:

Catalytic Reforming

45

Ballast water flow, Kgal/day -

7.0

Stormwater flow, 1.110 Kgal/day based on a rainfall of 60.89
 inch(es) over 89.8 acres/sq. feet.

Other sources of technology based limits:

LDEQ Stormwater Guidance, letter dated 6/17/87, from J. Dale Givens
 (LDEQ) to Myron Knudson (EPA Region 6).

The Light Commercial General Permit, LAG480000.

Best Professional Judgement

- D. Fee Rate -

1. Fee Rating Facility Type: major
2. Complexity Type: V
3. Wastewater Type: II
4. SIC code: 2911

- E. Continuous Facility Effluent Flow - 33.7 MGD (Max 30-Day).

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VI. Receiving Waters: Mississippi River

1. TSS (15%), mg/L: 16
2. Average Hardness, mg/L CaCO₃: 152
3. Critical Flow, cfs: 141,955
4. Mixing Zone Fraction: 0.33333
5. Harmonic Mean Flow, cfs: 366,748
6. River Basin: Mississippi River, Segment No. 070301
7. Designated Uses:

The designated uses are primary contact recreation, secondary contact recreation, fish and wildlife propagation, and drinking water supply.

Information based on the following: LAC 33:IX Chapter 11; Recommendation(s) from the Engineering Section. Hardness and 15% TSS data come from monitoring station #320 on the Mississippi River, south of Belle Chasse listed in Hardness and TSS Data for All LDEQ Ambient Stations for the Period of Record as of March 1998, LeBlanc. This data was presented in a memorandum from Todd Franklin to Jenniffer Sheppard dated July 17, 2008 (See Appendix C of Fact Sheet).

VII. Outfall Information:

Outfall 001

- A. Type of wastewater - the discharge of the combined plant effluent from Internal Outfalls 101, 201, 301, and 401.
- B. Location - at the final discharge sampling point of the combined plant effluent after the commingling of the discharges from Internal Outfall 101, 201, 301, and 401, and prior to combining with the waters of the Mississippi River at Latitude 29°41'00", Longitude 89°58'15".
- C. Treatment - none at the final outfall. See individual internal outfalls for effluent specific treatments.
- D. Flow - Continuous, (Max 30-Day) 33.7 MGD.
- E. Receiving waters - Mississippi River.
- F. Basin and segment - Mississippi River Basin, Segment 070301.

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Internal Outfall 101

- A. Type of wastewater - the discharge of treated process wastewater and process area stormwater, cooling tower blowdown, boiler blowdown, ion exchange resin bed backwash water, ballast water, desalter washwater, miscellaneous utility wastewater, stormwater from construction activities(*), compressor condensate, hydrostatic test water, general washdown water, steam condensate, fire systems test and training water, eyewash/safety shower water, and sanitary wastewater.

(*) Applicable to construction in existing process areas or on existing structures only. Any construction occurring in new/expanded process areas shall apply/obtain the appropriate stormwater general permit for construction activities (LAR100000 or LAR200000).

- B. Location - at the point of discharge from the outlet of the wastewater treatment system polishing pond prior to combining with discharges from Internal Outfalls 201, 301, and 401, at Latitude 29°40'42", Longitude 89°58'19".

- C. Treatment - treatment of process wastewaters consists of:

- equalization
- dissolved gas flotation
- steam stripping
- activated sludge
- clarification
- aerated biological treatment
- final clarification
- polishing pond

- D. Flow - Continuous, 3.6 MGD (Max 30-Day).

Process Wastewater*	1.890 MGD
Process Area Stormwater*	1.110 MGD
Ballast Water*	0.007 MGD
Utility Wastewater*	1.090 MGD
Sanitary Wastewater*	0.010 MGD
<u>Losses*</u>	- <u>0.507 MGD</u>
Total	3.600 MGD

* Specific component waste streams are defined at Appendix A-1.

- E. Receiving waters - Mississippi River, via Final Outfall 001.
- F. Basin and segment - Mississippi River Basin, Segment 070301.

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Internal Outfall 201

- A. Type of wastewater - the discharge of once through non-contact cooling water.
- B. Location - at the point of discharge from the non-contact cooling water system prior to combining with discharges from Internal Outfalls 101, 301, and 401, at Latitude 29°40'56", Longitude 89°58'23".
- C. Treatment - none.
- D. Flow - Continuous, 28.8 MGD (Max 30-Day).
- E. Receiving waters -Mississippi River, via Final Outfall 001.
- F. Basin and segment - Mississippi River Basin, Segment 070301.

Internal Outfall 301

- A. Type of wastewater - the discharge of non-process area stormwater runoff, boiler blowdown, ion exchange resin bed backwash water, general washdown water, steam condensate, fire systems test and training water, and eyewash/safety shower water.
- B. Location - at the point of discharge from the segregated stormwater retention basin prior to combining with discharges from Outfalls 101, 201, and 401, at Latitude 29°40'40", Longitude 89°58'19".
- C. Treatment:
 Non-Process Area Stormwater - sedimentation.
 All other discharges - none.
- D. Flow - Intermittent.
- E. Receiving waters -Mississippi River, via Final Outfall 001.
- F. Basin and segment - Mississippi River Basin, Segment 070301.

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Internal Outfall 401

- A. Type of wastewater - the discharge of the clarifier underflow stream from the raw river water intake clarification system and sand filter backwash water.
- B. Location - at the point of discharge of the high solids non-oily water sump prior to combining with the discharges from Internal Outfalls 101, 201, and 301, at Latitude 29°40'54", Longitude 89°58'23".
- C. Treatment - none.
- D. Flow - Continuous, 0.7 MGD (Max 30-Day).
- E. Receiving waters -Mississippi River, via Final Outfall 001.
- F. Basin and segment - Mississippi River Basin, Segment 070301.

Outfall 002

- A. Type of wastewater - the discharge of low contamination potential stormwater excess stormwater runoff from non-process areas, post first flush process area stormwater (rainfall in excess of one inch within in a 24-hour period), general washdown water, steam condensate, fire systems test and training water, and eyewash/safety shower water from the Central Lift Station.
- B. Location - at the point of discharge from the Central Lift Station prior to combining with the waters of the Mississippi River, Latitude 29°41'02", Longitude 89°58'20".
- C. Treatment - None.
- D. Flow - Intermittent.
- E. Receiving waters - Mississippi River.
- F. Basin and segment - Mississippi River Basin, Segment 070301.

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Outfall 003

- A. Type of wastewater - the discharge of low contamination potential stormwater excess stormwater runoff from non-process areas, general washdown water, steam condensate, fire systems test and training water, and eyewash/safety shower water from the North Lift Station.
- B. Location - at the point of discharge from the North Lift Station prior to combining with the waters of the Mississippi River, at Latitude 29°41'28", Longitude 89°58'28".
- C. Treatment - None.
- D. Flow - Intermittent.
- E. Receiving waters - Mississippi River.
- F. Basin and segment - Mississippi River Basin, Segment 070301.

Outfall 004

- A. Type of wastewater - the discharge of low contamination potential stormwater excess stormwater runoff from non-process areas, general washdown water, steam condensate, fire systems test and training water, and eyewash/safety shower water from the South Lift Station.
- B. Location - at the point of discharge downstream of the respective pumps prior to combining with the waters of the Mississippi River, at Latitude 29°41'05", Longitude 89°58'22".
- C. Treatment - None.
- D. Flow - Intermittent.
- E. Receiving waters - Mississippi River.
- F. Basin and segment - Mississippi River Basin, Segment 070301.

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VIII. Proposed Permit Limits:

The specific effluent limitations and/or conditions will be found in the draft permit. Development and calculation of permit limits are detailed in the Permit Limit Rationale section below.

Summary of Proposed Changes From the Current LPDES Permit:

- A. Outfall 001 - deletion of monitoring requirements for Total Nitrogen and Total Phosphorus. These parameters were established to address phosphorus and nitrogen impairments in the Mississippi River (Subsegment 070301) as indicated in the Court Ordered 303(d) list at the time of last permit issuance. The most recent Listing for impaired waterbodies (the 2006 Final Integrated Report) did not contain phosphorus or nitrogen as impairments in Subsegment 070301, therefore, these parameters have been deleted.

The LDEQ is aware of the occurrence of a low oxygen hypoxic or "dead zone" in the Gulf of Mexico and its relationship to nutrients and fresh water from the Mississippi River and has developed a criteria development plan for state waters in coordination with EPA to create defensible nutrient criteria based on the best available science. Work on criteria for the Mississippi River is an ongoing effort and will require further scientific investigation because of the complex nature of the large Mississippi River watershed which includes over 30 states and two Canadian Provinces. A reopener clause has been established in the permit in accordance with LAC 33:IX.2903 which allows LDEQ to modify, or alternatively, revoke and reissue the permit to comply with any more stringent nutrient limitations or requirements that are promulgated in the future.

- B. Outfall 001 - toxicity testing has been increased from 1/year to 1/quarter. This requirement has been established in accordance with the LDEQ/OES Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, Water Quality Management Plan Volume 3, Version 6 (April 16, 2008), and the Best Professional Judgment (BPJ) of the reviewer (See Appendix D).
- C. Internal Outfall 101 - limitations at this outfall have increased slightly due to an increase in unit process rates for vacuum crude distillation (from 96 to 101 Kbbbl/day), delayed coking (from 26.5 to 30 Kbbbl/day), and hydrotreating (from 115 to 160 Kbbbl/day). Additionally, there is also an increase in the amount of ballast water (from 5.0 to 7.0 Kgal/day) and contaminated stormwater to the treatment system (from 1.038 to 1.110 Kgal/day). The limitations for all process units were calculated in accordance with the Refinery Guidelines at 40 CFR Part 419, Subpart B.

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- D. Internal Outfall 101 - ConocoPhillips has requested monitoring frequency reductions for BOD₅, TSS, Oil & Grease, COD, Sulfide, Phenolic Compounds, Total Chromium, and Chromium (6+) in accordance with EPA's *Interim Guidance for Performance-based Reduction of NPDES Permit Monitoring Frequencies* (see Allowable Reduced Monitoring Frequency column in the table below). This request has been partially granted. Although ConocoPhillips does qualify for consideration per EPA's guidance, the Department has determined that the Allowable Reductions are not appropriate at this time.

The Proposed Monitoring Frequency column in the table below includes the frequencies established in this permit.

PARAMETER	PERMIT DAILY AVERAGE lbs/day	LONG TERM EFFLUENT AVERAGE lbs/day	RATIO OF LONG TERM AVERAGE TO PERMIT DAILY AVERAGE	EXISTING MONITORING FREQUENCY	ALLOWABLE REDUCED MONITORING FREQUENCY	PROPOSED MONITORING FREQUENCY
BOD ₅	2,246	431.5	19.2%	1/week	1/2 months	1/week
TSS	1,801	291.2	16.2%	1/week	1/2 months	1/week
Oil & Grease	657	154.1	23.5%	1/month	1/6 months	1/month
COD	16,646	3,410.6	21.8%	1/week	1/2 months	1/week
Sulfide	10.6	1.0	9.7%	1/week	1/2 months	2/month
Phenolic Compounds	13.8	0.0	0.0%	1/2 months	1/6 months	1/quarter
Total Chromium	16.3	0.01	0.1%	2/month	1/quarter	1/month
Chromium (6+)	1.4	0.1	7.1%	2/month	1/quarter	1/month

- E. ConocoPhillips has requested addition of Part II language to address Limits of Quantitation (LOQ) for Oil & Grease (5.0 mg/L) and Sulfide (0.040 mg/L). This language would allow ConocoPhillips to report zero (0) on their DMR if any individual analytical test result is less than the limit of quantitation. In accordance with the LOQ information provided in the LDEQ SOP for the Determination of Oil & Grease in Water (sop_1695_r04 dated December 12, 2007) and the SOP for the Determination of Sulfide (sop_1178_r04 dated January 10, 2008), this request has been granted.

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IX. Permit Limit Rationale:

The following section sets forth the principal facts and the significant factual, legal, methodological, and policy questions considered in preparing the draft permit. Also set forth are any calculations or other explanations of the derivation of specific effluent limitations and conditions, including a citation to the applicable effluent limitation guideline or performance standard provisions as required under LAC 33:IX.2707/40 CFR Part 122.44 and reasons why they are applicable or an explanation of how the alternate effluent limitations were developed.

A. TECHNOLOGY-BASED VERSUS WATER QUALITY STANDARDS-BASED EFFLUENT LIMITATIONS AND CONDITIONS

Following regulations promulgated at LAC 33:IX.2707.L.2.b/40 CFR Part 122.44(l)(2)(ii), the draft permit limits are based on either technology-based effluent limits pursuant to LAC 33:IX.2707.A/40 CFR Part 122.44(a) or on State water quality standards and requirements pursuant to LAC 33:IX.2707.D/40 CFR Part 122.44(d), whichever are more stringent.

B. TECHNOLOGY-BASED EFFLUENT LIMITATIONS, CONDITIONS, AND MONITORING REQUIREMENTS

Regulations promulgated at LAC 33:IX.2707.A/40 CFR Part 122.44(a) require technology-based effluent limitations to be placed in LPDES permits based on effluent limitations guidelines where applicable, on BPJ (best professional judgement) in the absence of guidelines, or on a combination of the two. The following is a rationale for types of wastewaters. See outfall information descriptions for associated outfall(s) in Section VII. Regulations also require permits to establish monitoring requirements to yield data representative of the monitored activity [LAC 33:IX.2715/40 CFR 122.48(b)] and to assure compliance with permit limitations [LAC 33:IX.2707.I./40 CFR 122.44(i)].

1. Outfall 001 - Process Wastewaters

*Outfall 001 - the continuous discharge of the combined plant effluent from Internal Outfalls 101, 201, 301, and 401.

The following requirements have been established for this commingled outfall:

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PARAMETER(S)	MASS, LBS/DAY unless otherwise stated		CONCENTRATION, MG/L unless otherwise stated		MEASUREMENT FREQUENCY
	MONTHLY AVERAGE	DAILY MAXIMUM	MONTHLY AVERAGE	DAILY MAXIMUM	
Flow, MGD (*1)	Report	Report	---	---	1/week
pH Range Excursions No. of Events >60 minutes	---	---	---	0 (*2)	Continuous
pH Range Excursions Monthly Total Accumulated Time in Minutes	---	---	---	446 (*2)	Continuous
pH (Standard Units)	---	---	Report (*2) (Min)	Report (*2) (Max)	Continuous

(*1) The arithmetic sum of Internal Outfalls 101, 201, 301, and 401 shall be reported on the DMR.

(*2) The pH shall be within a range of 6.0 - 9.0 Standard Units at all times subject to the continuous monitoring pH range excursion provision in Part II, Paragraph H of the draft permit.

Site-Specific Consideration(s) for Outfall 001

Flow - this requirement has been established in accordance with LAC 33:IX.2707.I.1.b. and retained from the current LPDES permit effective on January 1, 2004. The 1/week monitoring frequency has also been retained.

PH - this requirement has been established in accordance with LAC 33:IX.1113.C.1. and retained from the current LPDES permit effective on January 1, 2004. The continuous monitoring frequency has also been retained.

Internal Outfall 101 - the continuous discharge of treated process wastewater and process area stormwater, cooling tower blowdown, boiler blowdown, ion exchange resin bed backwash water, ballast water, desalter washwater, miscellaneous utility wastewater, stormwater from construction activities(), compressor condensate, hydrostatic test water, general washdown water, steam condensate, fire systems test

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and training water, eyewash/safety shower water, and sanitary wastewater.

(*) Applicable to construction in existing process areas or on existing structures only. Any construction occurring in new/expanded process areas shall apply/obtain the appropriate stormwater general permit for construction activities (LAR100000 or LAR200000).

ConocoPhillips Company, Alliance Refinery is subject to Best Practicable Control Technology Currently Available (BPT) and Best Available Technology Economically Achievable (BAT) effluent limitation guidelines listed below:

Manufacturing Operation
 Refinery

Guideline
 40 CFR 419, Subpart B
 Cracking Subcategory

Calculations and basis of permit limitations are found at Appendix A and associated appendices. See below for site-specific considerations.

PARAMETER(S)	MASS, LBS/DAY unless otherwise stated		CONCENTRATION, MG/L unless otherwise stated		MEASUREMENT FREQUENCY
	MONTHLY AVERAGE	DAILY MAXIMUM	MONTHLY AVERAGE	DAILY MAXIMUM	
Flow, MGD	Report	Report	---	---	Continuous
BOD ₅	2261	4075	---	---	1/week
TSS	1813	2841	---	---	1/week
Oil & Grease	661	1245	---	---	1/month
COD	15752	30476	---	---	1/week
Ammonia (as N)	1100	2420	---	---	1/week
Sulfide (as S)	10.6	23.8	---	---	2/month
Phenolic Compounds	14.7	30.3	---	---	1/quarter
Total Chromium	18.4	52.9	---	---	1/month
Chromium (6+)	1.6	3.6	---	---	1/month

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Site-Specific Consideration(s) for Internal Outfall 101

Flow - this requirement has been established in accordance with LAC 33:IX.2707.I.1.b. and retained from the current LPDES permit effective on January 1, 2004. The continuous monitoring frequency has also been retained.

BOD₅, TSS, Oil & Grease, COD, Ammonia (as N), Sulfide (as S), Phenolic Compounds, Total Chromium, Chromium (6+) - limitations have been established in accordance with the Refinery Guidelines at 40 CFR 419, Subpart B for the Cracking Subcategory and were based on a production rate of 260 K bbl/day, a ballast flow of 7.0 Kgal/day, and contaminated stormwater flow of 1.110 Kgal/day.

ConocoPhillips has requested monitoring frequency reductions for BOD₅, TSS, Oil & Grease, COD, Sulfide, Phenolic Compounds, Total Chromium, and Chromium (6+) in accordance with EPA's *Interim Guidance for Performance-based Reduction of NPDES Permit Monitoring Frequencies* (see Allowable Reduced Monitoring Frequency column in the table below). This request has been partially granted. Although ConocoPhillips does qualify for consideration per EPA's guidance, the Department has determined that the Allowable Reductions are not appropriate at this time.

The Proposed Monitoring Frequency column in the table below includes the frequencies established in this permit.

PARAMETER	PERMIT DAILY AVERAGE lbs/day	LONG TERM EFFLUENT AVERAGE lbs/day	RATIO OF LONG TERM AVERAGE TO PERMIT DAILY AVERAGE	EXISTING MONITORING FREQUENCY	ALLOWABLE REDUCED MONITORING FREQUENCY	PROPOSED MONITORING FREQUENCY
BOD ₅	2,246	431.5	19.2%	1/week	1/2 months	1/week
TSS	1,801	291.2	16.2%	1/week	1/2 months	1/week
Oil & Grease	657	154.1	23.5%	1/month	1/6 months	1/month
COD	16,616	3,410.6	21.8%	1/week	1/2 months	1/week
Sulfide	10.6	1.0	9.7%	1/week	1/2 months	2/month
Phenolic Compounds	13.8	0.0	0.0%	1/2 months	1/6 months	1/quarter

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PARAMETER	PERMIT DAILY AVERAGE lbs/day	LONG TERM EFFLUENT AVERAGE lbs/day	RATIO OF LONG TERM AVERAGE TO PERMIT DAILY AVERAGE	EXISTING MONITORING FREQUENCY	ALLOWABLE REDUCED MONITORING FREQUENCY	PROPOSED MONITORING FREQUENCY
Total Chromium	16.3	0.01	0.1%	2/month	1/quarter	1/month
Chromium (6+)	1.4	0.1	7.1%	2/month	1/quarter	1/month

Ammonia (as N) was not included in the monitoring frequency reduction request. Therefore, the 1/week monitoring frequency for Ammonia (as N) has been retained from the current LPDES permit effective on January 1, 2004.

*Internal Outfall 201 - the continuous discharge of once through non-contact cooling water.

Utility wastewaters including once through non-contact cooling water shall receive BPJ limitations according to the following schedule:

PARAMETER(S)	MASS, LBS/DAY unless otherwise stated		CONCENTRATION, MG/L unless otherwise stated		MEASUREMENT FREQUENCY
	MONTHLY AVERAGE	DAILY MAXIMUM	MONTHLY AVERAGE	DAILY MAXIMUM	
Flow, MGD	Report	Report	---	---	1/week
TOC (net)	---	---	---	5	1/week

Site-Specific Consideration(s) for Internal Outfall 201

Flow - this requirement has been established in accordance with LAC 33:IX.2707.I.1.b. and retained from the current LPDES permit effective on January 1, 2004. The 1/week monitoring frequency by pump curve has also been retained.

TOC (net) - the limitation and monitoring frequency requirements have been retained from the current LPDES permit effective on January 1, 2004 and was established based on BPJ. Additionally, the 5 mg/L daily maximum (net) limitation is also consistent with the limitation established in Schedule E

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of the Light Commercial General Permit, LAG480000, for similar discharges.

*Internal Outfall 301 - the intermittent discharge of non-process area stormwater runoff, boiler blowdown, ion exchange resin bed backwash water, general washdown water, steam condensate, fire systems test and training water, and eyewash/safety shower water.

Wastewaters including non-process area stormwater runoff, boiler blowdown, ion exchange resin bed backwash water, general washdown water, steam condensate, fire systems test and training water, and eyewash/safety shower water shall receive BPJ limitations according to the following schedule:

PARAMETER(S)	MASS, LBS/DAY unless otherwise stated		CONCENTRATION, MG/L unless otherwise stated		MEASUREMENT FREQUENCY
	MONTHLY AVERAGE	DAILY MAXIMUM	MONTHLY AVERAGE	DAILY MAXIMUM	
Flow, MGD	Report	Report	---	---	1/week
TOC	---	---	---	50	1/week
Oil & Grease	---	---	---	15	1/week

Site-Specific Consideration(s) for Internal Outfall 301

Flow - this requirement has been established in accordance with LAC 33:IX.2707.I.1.b. and retained from the current LPDES permit effective on January 1, 2004. The 1/week monitoring frequency has also been retained.

TOC and Oil & Grease - these limitations and monitoring frequency requirements have been retained from the current LPDES permit effective on January 1, 2004 and were established based on BPJ. Additionally, the 50 mg/L daily maximum TOC and 15 mg/L daily maximum Oil & Grease limitations are also consistent with the limitations established in Schedules C, G, and I of the Light Commercial General Permit, LAG480000, for similar discharges.

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***Internal Outfall 401** - the continuous discharge of the clarifier underflow stream from the raw river water intake clarification system and sand filter backwash water.

Utility wastewaters including clarifier underflow stream from the raw river water intake clarification system and sand filter backwash water shall receive BPJ limitations according to the following schedule:

PARAMETER(S)	MASS, LBS/DAY unless otherwise stated		CONCENTRATION, MG/L unless otherwise stated		MEASUREMENT FREQUENCY
	MONTHLY AVERAGE	DAILY MAXIMUM	MONTHLY AVERAGE	DAILY MAXIMUM	
Flow, MGD	Report	Report	---	---	1/week
Coagulants	---	---	---	Inventory Calculation	1/month

Site-Specific Consideration(s) for Internal Outfall 401

Flow - this requirement has been established in accordance with LAC 33:IX.2707.I.1.b. and retained from the current LPDES permit effective on January 1, 2004. The 1/week monitoring frequency has also been retained.

Coagulants - this requirement has been retained from the current LPDES permit effective on January 1, 2004 and was based on BPJ.

The quantity and types of all coagulants (clarifying agents) used in the intake raw river water treatment clarification system during the sampling month shall be recorded. Records of the quantity and type of coagulants used shall be retained for three (3) years following Part III.C.3. No DMR reporting shall be required.

2. Outfall(s) 002, 003, and 004 - Commingled Stormwater & Utility Wastewater.

***Outfall 002** - the intermittent discharge of low contamination potential stormwater excess stormwater runoff from non-process areas, post first flush process area stormwater (rainfall in excess of one inch within in a 24-hour period), general washdown water, steam condensate, fire systems test and training water, and eyewash/safety shower water from the Central Lift Station.

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***Outfall 003** - the intermittent discharge of low contamination potential stormwater excess stormwater runoff from non-process areas, general washdown water, steam condensate, fire systems test and training water, and eyewash/safety shower water from the North Lift Station.

***Outfall 004** - the intermittent discharge of low contamination potential stormwater excess stormwater runoff from non-process areas, general washdown water, steam condensate, fire systems test and training water, and eyewash/safety shower water from the South Lift Station.

Utility wastewaters and low potential contaminated stormwater discharged through discrete outfall(s) not associated with process wastewater shall receive the following BPJ limitations in accordance with this Office's guidance on stormwater, letter dated 6/17/87, from J. Dale Givens (LDEQ) to Myron Knudson (EPA Region 6).

PARAMETER(S)	MASS, LBS/DAY unless otherwise stated		CONCENTRATION, MG/L unless otherwise stated		MEASUREMENT FREQUENCY
	MONTHLY AVERAGE	DAILY MAXIMUM	MONTHLY AVERAGE	DAILY MAXIMUM	
Flow, MGD	Report	Report	---	---	1/week
TOC	---	---	---	50	1/week
Oil & Grease	---	---	---	15	1/week
pH Standard Units	---	---	6.0 (min)	9.0 (max)	1/month

Site-Specific Consideration(s) for Outfalls 002, 003, and 004

Flow - this requirement has been established in accordance with LAC 33:IX.2707.I.1.b. and retained from the current LPDES permit effective on January 1, 2004. The 1/week monitoring frequency has also been retained.

PH - this requirement has been established in accordance with LAC 33:IX.1113.C.1. and retained from the current LPDES permit effective on January 1, 2004. The 1/month monitoring frequency has also been retained.

TOC and Oil & Grease - these requirement have been retained from the current LPDES permit effective on January 1, 2004 and were established based on BPJ. Additionally, these requirements are consistent with current guidance for

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stormwater discharges at industrial facilities. The 1/week monitoring frequency for both parameters has also been retained.

Additional Requirements Pertaining to Stormwater:

In accordance with LAC 33:IX.2707.I.3 and 4 [40 CFR 122.44(I)(3) and (4)], a Part II condition is proposed for applicability to all storm water discharges from the facility, either through permitted outfalls or through outfalls which are not listed in the permit or as sheet flow. The Part II condition requires a Storm Water Pollution Prevention Plan (SWP3) within six (6) months of the effective date of the final permit, along with other requirements. If the permittee maintains other plans that contain duplicative information, those plans could be incorporated by reference to the SWP3. Examples of these type plans include, but are not limited to: Spill Prevention Control and Countermeasures Plan (SPCC), Best Management Plan (BMP), Response Plans, etc. The conditions will be found in the draft permit. Including Best Management Practice (BMP) controls in the form of a SWP3 is consistent with other LPDES and EPA permits regulating similar discharges of stormwater associated with industrial activity, as defined in LAC 33:IX.2522.B.14 [40 CFR 122.26(b)(14)].

C. WATER QUALITY-BASED EFFLUENT LIMITATIONS

Technology-based effluent limitations and/or specific analytical results from the permittee's application were screened against state water quality numerical standard based limits by following guidance procedures established in the Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, LDEQ, April 16, 2008. Calculations, results, and documentation are given in Appendix B.

In accordance with LAC 33:IX.2707.D.1/40 CFR § 122.44(d)(1), the existing (or potential) discharge (s) was evaluated in accordance with the Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, LDEQ, April 16, 2008, to determine whether pollutants would be discharged "at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard." Calculations, results, and documentation are given in Appendix B.

The following pollutants received water quality based effluent limits:

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POLLUTANT(S)
None

Minimum quantification levels (MQL's) for state water quality numerical standards-based effluent limitations are set at the values listed in the Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, LDEQ, April 16, 2008. They are also listed in Part II of the permit.

TMDL Waterbodies

Outfalls 001, 002, 003, and 004

The discharges from ConocoPhillips Company's Alliance Refinery include process wastewater and process area stormwater, cooling tower blowdown, boiler blowdown, ion exchange resin bed backwash water, ballast water, desalter washwater, miscellaneous utility wastewater, stormwater from construction activities, compressor condensate, hydrostatic test water, general washdown water, steam condensate, fire systems test and training water, eyewash/safety shower water, sanitary wastewater, once through non-contact cooling water, non-process area stormwater runoff, clarifier underflow stream from the raw river water intake clarification system, and sand filter backwash water (Outfall 001), low contamination potential excess stormwater runoff from non-process areas, post first flush process area stormwater (rainfall in excess of one inch within in a 24-hour period), general washdown water, steam condensate, fire systems test and training water, and eyewash/safety shower water from the Central Lift Station (Outfall 002), and low contamination potential excess stormwater runoff from non-process areas, general washdown water, steam condensate, fire systems test and training water, and eyewash/safety shower water from the North and South Lift Stations (Outfalls 003 and 004) are to the Mississippi River, Segment No. 070301. The Mississippi River is not listed on the 2006 Final Integrated Report as being impaired. Therefore, no additional requirements have been established in this permit.

Monitoring frequencies for water quality based limited parameters are established in accordance with the Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, LDEQ, April 16, 2008.

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D. Biomonitoring Requirements

It has been determined that there may be pollutants present in the effluent which may have the potential to cause toxic conditions in the receiving stream. The State of Louisiana has established a narrative criteria which states, "toxic substances shall not be present in quantities that alone or in combination will be toxic to plant or animal life." The Office of Environmental Services requires the use of the most recent EPA biomonitoring protocols.

Whole effluent biomonitoring is the most direct measure of potential toxicity which incorporates both the effects of synergism of effluent components and receiving stream water quality characteristics. Biomonitoring of the effluent is, therefore, required as a condition of this permit to assess potential toxicity. The biomonitoring procedures stipulated as a condition of this permit for Outfall(s) 001 are as follows:

TOXICITY TESTS

FREQUENCY

Acute static renewal 48-hour
 definitive toxicity test
 using Daphnia pulex

1/quarter

Acute static renewal 48-hour
 definitive toxicity test
 using fathead minnow (Pimephales
 promelas)

1/quarter

Toxicity tests shall be performed in accordance with protocols described in the latest revision of the "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms." The stipulated test species are appropriate to measure the toxicity of the effluent consistent with the requirements of the State water quality standards. The biomonitoring frequency has been established to reflect the likelihood of ambient toxicity and to provide data representative of the toxic potential of the facility's discharge in accordance with regulations promulgated at LAC 33:IX.2715/40 CFR Part 122.48.

Results of all dilutions as well as the associated chemical monitoring of pH, temperature, hardness, dissolved oxygen, conductivity, and alkalinity shall be documented in a full report according to the test method publication mentioned in the previous paragraph. The permittee shall submit a copy of the first full report to the Office of Environmental Compliance. The full report and subsequent reports are to be retained for three (3) years following the provisions of Part III.C.3 of this permit. The permit

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requires the submission of certain toxicity testing information as an attachment to the Discharge Monitoring Report.

This permit may be reopened to require effluent limits, additional testing, and/or other appropriate actions to address toxicity if biomonitoring data show actual or potential ambient toxicity to be the result of the permittee's discharge to the receiving stream or water body. Modification or revocation of the permit is subject to the provisions of LAC 33:IX.3105/40 CFR 124.5. Accelerated or intensified toxicity testing may be required in accordance with Section 308 of the Clean Water Act.

Dilution Series

The permit requires five (5) dilutions in addition to the control (0% effluent) to be used in the toxicity tests. These additional effluent concentrations shall be 0.46%, 0.62%, 0.83%, 1.1%, and 1.5%. The low-flow effluent concentration (critical dilution) is defined as 1.1% effluent.

X. Compliance History/DMR Review:

A compliance history/DMR review was completed for this facility for the period of January 2006 through September 2008.

DATE	PARAMETER	OUTFALL	REPORTED VALUE		PERMIT LIMITS	
			MONTHLY AVERAGE	DAILY MAXIMUM	MONTHLY AVERAGE	DAILY MAXIMUM
06/30/06	PH range excursions	001	Out of range for greater than 60 minutes - 1 time		Out of range for greater than 60 minutes - 0 times	
12/31/07	Ammonia (as N)	101	1136 lbs/day	---	1100 lbs/day	---

XI. "IT" Questions - Applicant's Responses

The "IT" Questions along with the applicant's responses can be found in Appendix D of the LPDES renewal application dated June 24, 2008. The responses can be viewed using LDEQ's Electronic Document Management System, under Document ID 37064929, pages 86 and 87.

XII. Endangered Species:

The receiving waterbody, Subsegment 070301 of the Mississippi River Basin, has been identified by the U.S. Fish and Wildlife Service (FWS) as habitat for the Pallid Sturgeon, which is listed as an endangered species. This

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draft permit has been submitted to the FWS for review in accordance with a letter dated 10/24/07 from Boggs (FWS) to Brown (LDEQ). As set forth in the Memorandum of Understanding between the LDEQ and the FWS, and after consultation with FWS, LDEQ has determined that the issuance of the LPDES permit is not likely to have an adverse effect upon the Pallid Sturgeon. The effluent limitations established in the permit ensure protection of aquatic life and maintenance of the receiving water as aquatic habitat. Therefore, the issuance of the LPDES permit is not likely to have an adverse effect on any endangered or candidate species or the critical habitat.

XIII. Historic Sites:

The discharge is from an existing facility location, which does not include an expansion on undisturbed soils. Therefore, there should be no potential effect to sites or properties on or eligible for listing on the National Register of Historic Places, and in accordance with the "Memorandum of Understanding for the Protection of Historic Properties in Louisiana Regarding LPDES Permits" no consultation with the Louisiana State Historic Preservation Officer is required.

XIV. Tentative Determination:

On the basis of preliminary staff review, the Department of Environmental Quality has made a tentative determination to permit for the discharge described in the application.

XV. Variances:

No requests for variances have been received by this Office.

XVI. Public Notices:

Upon publication of the public notice, a public comment period shall begin on the date of publication and last for at least 30 days thereafter. During this period, any interested persons may submit written comments on the draft permit and may request a public hearing to clarify issues involved in the permit decision at this Office's address on the first page of the fact sheet and rationale. A request for a public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing.

Public notice published in:

Local newspaper of general circulation

Office of Environmental Services Public Notice Mailing List

Appendix A

Spreadsheet: refinery.wk4
Developer: Bruce Fielding
Software: Lotus 4.0
Revision date: 09/07/00
Calculation Date: 11/24

(* 1)
FACILITY INFORMATION

Permittee:
Permit Number:
Appendix:
Concentration flow, (MGD):
Anti-backsliding, GL vs Old, 0=n, 1=y, 2=GL+Old
Outfall number:
40 CFR 419 Subpart, (A, B, C, D, or E):
Refinery Type:
(Topping, Cracking, Petrochemical,
Lube, or Integrated

(*2)

THROUGHPUT RATES

Feedstock (Crude Oil and NGL) Rate to Topping Unit(s): 260
Process Unit Rates: Input in Table 2

(* 3)
FLOW RATES

Ballast Flow:		7
Stormwater Calculations	sq. feet	acres
Process area, sq. ft. (or acres):	3911688	89.8
Number of Days (Default is 365):	110	
	inches	& runoff
Annual rainfall, inches:	60.89	82
	K gal/day	
Contaminated Stormwater to Treatment System	1106.832	

```

(*4)
RATIOS:
TOC:BOD5 (Default is 2.2, if needed):

```

(*5)
Discharge fraction, default = 1

(* 6)

ANTI-BACKSLIDING INFORMATION:

ConocoPhillips Company / Alliance Refinery	(*A)	(*B)	(*C)
LA0003115, AI2418	Tech	Old Tech	Old Antitack
Appendix A-1	AVG	MAX	NO SCR

PARAMETER	lb/day	lb/day1-OldvsGL	2-Old+GL
1			
2			
3			
4			
5			
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8			
9			
10			
11			
12			
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100			

Conventional:

BOD5

TSS

Oil and Grease

Nonconventional:

COD

TÒC

Ammonia

Sulfide

Total Phenolics

Metals:

Chromium (Total)

Chromium (6+)

(*7)

Conversion Utilities:

mg/L - -> lbs/day 8.34

gpm - - >MGD 0.00144

gpm - -> K gal/day 1.44

ft3-->gal 7.480519

inches-->feet 0.083333

acres-->sq. ft. 43560

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Appendix A-1

Page 2

Calculation of Technology Based Limits for ConocoPhillips Company / Alliance Refinery
Out. 101

Calculation of Unit Process Rates and Unit Configuration Factors

TABLE 2

(*1)	(*2)	(*3)	(*4)	(*5)	(*6)	(*7)
	Unit Process Rate					
	Unit	to	Unit			
	EPA	Process	Total	Feedstock	Process	Process
	Process	Rate	Feedstock	Rate	Weighting	Config.
	Number	K bbl/day	Rate	Ratio *	Factor =	Factor
CRUDE PROCESSES:						
Atmospheric Crude Distillation	1	260	260	1	1	1
Crude Desalting	2	260	260	1	1	1
Vacuum Crude Distillation	3	101	260	0.388462	1	0.388462
TOTAL CRUDE PROCESSES FEEDSTOCK RATE=		621				
CRACKING AND COKING PROCESSES:						
Visbreaking	4	0	260	0	6	0
Thermal Cracking	5	0	260	0	6	0
Fluid Catalytic Cracking	6	110	260	0.423077	6	2.538462
Moving Bed Catalytic Cracking	7	0	260	0	6	0
Hydrocracking	10	0	260	0	6	0
Delayed Coking	15	30	260	0.115385	6	0.692308
Fluid Coking	16	0	260	0	6	0
Hydrotreating	54	160	Not Applicable to Refinery Process Config. Factor			
TOTAL CRACKING AND COKING PROCESSES FEEDSTOCK RATE=		300				
LUBE PROCESSES:						
Hydrofining, Hydrofinishing, Lube Hydrofinishing	21	0	260	0	13	0
White Oil Manufacture	22	0	260	0	13	0
Propane: Dewaxing, Deasphalting, Fractioning, Deresining	23	0	260	0	13	0
Duo Sol, Solvent Treating, Solvent Extraction, Duotreating, Solvent Dewaxing, Solvent Deasphalt	24	0	260	0	13	0
Lube Vacuum Tower, Oil Fractionation, Batch Still (Naphtha Strip), Bright Stock Treating	25	0	260	0	13	0
Centrifuge and Chilling	26	0	260	0	13	0
Dewaxing: MEK, Ketone, MEK-Toluene	27	0	260	0	13	0
Deoiling (Wax)	28	0	260	0	13	0
Naphthenic Lube Production	29	0	260	0	13	0
SO2 Extraction	30	0	260	0	13	0
Wax Pressing	34	0	260	0	13	0
Wax Plant (with Neutral Separation)	35	0	260	0	13	0
Furfural Extracting	36	0	260	0	13	0
Clay Contacting - Percolation	37	0	260	0	13	0
Wax Sweating	38	0	260	0	13	0
Acid Treating	39	0	260	0	13	0
Phenol Extraction	40	0	260	0	13	0
TOTAL LUBE PROCESS FEEDSTOCK RATE=		0				

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 Calculation of Technology Based Limits for ConocoPhillips Company / Alliance Refinery
 Out. 101

Calculation of Unit Process Rates, Unit Configuration, Process and Size Factors

TABLE 2 (continued)

(*1)	(*2)	(*3)	(*4)	(*5)	(*6)	(*7)
	Unit Process Rate					
	EPA Process Number	Unit Process Rate K bbl/day	Total Feedstock Rate	Unit to Feedstock Ratio *	Weighting Factor *	Unit Process Config. Factor
ASPHALT PROCESSES:						
Asphalt Production	18	0	260	0	12	0
200 Deg. F Softening Point Unfluxed Asphalt	32	0	Not Applicable to Refinery Process Config. Factor			
Asphalt Oxidizing	43	0	260	0	12	0
Asphalt Emulsifying	89	0	260	0	12	0

TOTAL ASPHALT PROCESS FEEDSTOCK RATE=

0

REFORMING AND ALKYLATION PROCESSES:

H2SO4 Alkylation	8	0	Not Applicable to Refinery Process Config. Factor			
Catalytic Reforming	12	45	Not Applicable to Refinery Process Config. Factor			

TOTAL REFORMING AND ALKYLATION PROCESS FEEDSTOCK RATE=

45

TOTAL REFINERY PROCESS CONFIGURATION FACTOR=

5.62

TABLE 3

PROCESS FACTORS BY SUBPART

Total Refinery Process Configuration	Cracking Subpart B
< 2.49	0.58
2.5 to 3.49	0.63
3.5 to 4.49	0.74
4.5 to 5.49	0.88
5.5 to 5.99	1
6.0 to 6.49	1.09
6.5 to 6.99	1.19
7.0 to 7.49	1.29
7.5 to 7.99	1.41
8.0 to 8.49	1.53
8.5 to 8.99	1.67
9.0 to 9.49	1.82
9.5 to 9.99	1.89
10.0 to 10.49	1.89
10.5 to 10.99	1.89
11.0 to 11.49	1.89
11.5 to 11.99	1.89
12.0 to 12.49	1.89
12.5 to 12.99	1.89
13.0 to 13.49	1.89
13.5 to 13.99	1.89
>=14.00	1.89

TABLE 4

SIZE FACTORS BY SUBPART

K bbl/day Feedstock (Stream Day)	Cracking Subpart B
< 24.9	0.91
25.0 to 49.9	0.95
50.0 to 74.9	1.04
75.0 to 99.9	1.13
100.0 to 124.9	1.23
125.0 to 149.9	1.35
150.0 to 174.9	1.41
175.0 to 199.9	1.41
200.0 to 224.9	1.41
>=225.0	1.41

TABLE 5

PROCESS GROUP FEEDSTOCK RATES:

Process Group:	Feedstock Rate, K bbl/day:
Crude=	621
Cracking and Coking=	300
Lube=	0
Asphalt=	0
Reforming and Alkylation=	45

PROCESS FACTOR INPUT:

Refinery Configuration = 5.62

SIZE FACTOR INPUT:

Feedstock, K bbl/day = 260

FACTOR REFERENCE

PROCESS FACTOR = 1 419.23 (b)

SIZE FACTOR = 1.41 419.23 (b)

Multiplier = Feedstock * Process Factor * Size Factor

Multiplier = 366.6

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 Calculation of Technology Based Limits for ConocoPhillips Company / Alliance Refinery
 Out. 101
 Conventional, nonconventional, and toxic refinery pollutant loading calculations
 TABLE 6 (continued)
 40 CFR 419, Petroleum and Refining Guidelines

(*1)	(*2)	(*3)	(*4)	(*5)	(*6)	(*7)	(*8)	(*9)
	REFERENCES:		FACTORS:			Discharge	LOADINGS:	
			Cracking	Cracking		Fraction	Cracking	Cracking
			Subpart	Subpart		Outfall	Subpart	Subpart
PROCESS WASTEWATER	Subpart B		B	B	Table 2		B	B
	Category: Treatmt.		1b/K bbl	1b/K bbl	Group Feedstock		1b/day	1b/day
PARAMETER	Cracking Tech.		Avg	Max	Rate, K bbl/day		Avg	Max
Chromium (6+)								
Crude Processes	419.23(c)	BAT	0.0003	0.0007	621	1	0.1863	0.4347
Cracking & Coking	419.23(c)	BAT	0.0034	0.0076	300	1	1.02	2.28
Asphalt Processes	419.23(c)	BAT	0.0019	0.0041	---	---	---	---
Lube Processes	419.23(c)	BAT	0.0087	0.0192	---	---	---	---
Reforming and Alkylation	419.23(c)	BAT	0.0031	0.0069	45	1	0.1395	0.3105
Chromium (6+) BAT:							1.3458	3.0252

Apply Most Stringent (BAT or BPT) for Total Recoverable Phenolics, Total Chromium, and Chromium (6+):

Total Phenolics	---	---	---	---	---		13.1976	27.1284
Chromium (Total)	---	---	---	---	---		16.449	47.346
Chromium (6+)	---	---	---	---	---		1.3458	3.0252

	Subpart B		Cracking	Cracking		Discharge	Cracking	Cracking
	Category: Treatmt.		Subpart	Subpart		Fraction	Subpart	Subpart
BALLAST WATER	Cracking Tech.		B	B		Through	B	B
PARAMETER	Cracking Tech.		1b/K gal	1b/K gal	Flow Outfall		1b/day	1b/day
			Avg	Max	K gal/day		Avg	Max
Conventional								
BOD5	419.24(c)	BCT	0.21	0.4	7	1	1.47	2.8
TSS	419.24(c)	BCT	0.17	0.26	7	1	1.19	1.82
Oil and Grease	419.24(c)	BCT	0.067	0.126	7	1	0.469	0.882
Nonconventional								
COD	419.23(d)	BAT	2	3.9	7	1	14	27.3
TOC	---	---	---	---	7	1	---	---

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 Calculation of Technology Based Limits for ConocoPhillips Company / Alliance Refinery
 Out. 101
 Conventional, nonconventional, and toxic refinery pollutant loading calculations
 TABLE 6 (continued)
 40 CFR 419, Petroleum and Refining Guidelines

(*1)	(*2)	(*3)	(*4)	(*5)	(*6)	(*7)	(*8)	(*9)
			Cracking	Cracking		Discharge	Cracking	Cracking
			Subpart	Subpart		Fraction	Subpart	Subpart
STORMWATER	Subpart B		B	B		Through	B	B
	Category: Treatm.	lb/K gal	lb/K gal			Flow Outfall	lb/day	lb/day
PARAMETER	Cracking Tech.	Avg	Max		K gal/day		Avg	Max
Conventional								
BOD5	419.24(e)	BCT	0.22	0.4	1106.832	1	243.5031	442.7329
TSS	419.24(e)	BCT	0.18	0.28	1106.832	1	199.2298	309.9131
Oil and Grease	419.24(e)	BCT	0.067	0.13	1106.832	1	74.15777	143.8882
Nonconventional								
COD	419.23(f)	BAT	1.5	3	1106.832	1	1660.249	3320.497
TOC	---	---	---	---	1106.832	1	---	---
Total Phenolics	419.23(f)	BAT	0.0014	0.0029	1106.832	1	1.549565	3.209814
Metals								
Chromium (Total)	419.23(f)	BAT	0.0018	0.005	1106.832	1	1.992298	5.534162
Chromium (6+)	419.23(f)	BAT	0.00023	0.00052	1106.832	1	0.254571	0.575553

TABLE 7

TOTAL ALLOCATIONS = Process WW + Ballast Water + Contaminated SW (lbs/day)

	PROCESS WASTEWATER		BALLAST		STORMWATER		TOTAL ALLOCATION	
	(*1)	(*2)	(*3)	(*4)	(*5)	(*6)	(*7)	(*9)
	Cracking	Cracking	Cracking	Cracking	Cracking	Cracking	Cracking	Cracking
	Subpart	Subpart	Subpart	Subpart	Subpart	Subpart	Subpart	Subpart
	B	B	B	B	B	B	B	B
PARAMETER	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day
	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Conventional								
BOD5	2016.3	3629.34	1.47	2.8	243.5031	442.7329	2261.273	4074.873
TSS	1613.04	2529.54	1.19	1.82	199.2298	309.9131	1813.46	2841.273
Oil and Grease	586.56	1099.8	0.469	0.882	74.15777	143.8882	661.1868	1244.57
Nonconventional								
COD	14077.44	27128.4	14	27.3	1660.249	3320.497	15751.69	30476.2
TOC	---	---	---	---	---	---	---	---
Ammonia	1099.8	2419.56	---	---	---	---	1099.8	2419.56
Sulfide	10.6314	23.829	---	---	---	---	10.6314	23.829
Total Phenolics	13.1976	27.1284	---	---	1.549565	3.209814	14.74717	30.33821
Metals								
Chromium (Total)	16.449	47.346	---	---	1.992298	5.534162	18.4413	52.88016
Chromium (6+)	1.3458	3.0252	---	---	0.254571	0.575553	1.600371	3.600753

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 Calculation of Technology Based Limits for ConocoPhillips Company / Alliance Refinery
 Out. 101

Anti-Backsliding Screening

TABLE 8

Anti-Backsliding Calculations, 40 CFR 122.44(i)(1), LAC 33.IX.2361.L

(*1) PARAMETER	(*2) G/L Val		(*3) G/L Val Tech		(*4) Old Tech		(*5) Old Tech		(*6) Antiback		(*7) Out. 101		(*8) Out. 101		(*9) Out. 101		(*10) Out. 101	
	Avg	Max	Avg	Max	Avg	Max	Max0=no scr.	Max1=OldvsGL	Avg	Max	Avg	Max	Avg	Max	Avg	Max	Avg	Max
	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
2=Old+GL																		
Conventional:																		
BOD5	2261.273	4074.873							---	2261	4075		---	---				
TSS	1813.46	2841.273							---	1813	2841		---	---				
Oil and Grease	661.1868	1244.57							---	661	1245		---	---				
Nonconventional:																		
COD	15751.69	30476.2							---	15752	30476		---	---				
TOC									---				---	---				
Ammonia	1099.8	2419.56							---	1100	2420		---	---				
Sulfide	10.6314	23.829							---	10.6	23.8		---	---				
Total Phenolics	14.74717	30.33821							---	14.7	30.3		---	---				
Metals:																		
Chromium (Total)	18.4413	52.88016							---	18.4	52.9		---	---				
Chromium (6+)	1.600371	3.600753							---	1.6	3.6		---	---				

APPENDIX A-2 LA0003115, AI No. 2418

Documentation and Explanation of Technology Calculations
and Associated Lotus Spreadsheet

This is a technology spreadsheet covering the effluent guidelines for petroleum refining, 40 CFR 419. The refinery guidelines consists of 5 Subparts; Subpart A-Topping, Subpart B-Cracking, Subpart C-Petrochemical, Subpart D-Lube, and Subpart E-Integrated. Treatment technologies consist of Best Available Technology Economically Achievable (BAT), Best Conventional Technology (BCT), and Best Practicable Control Technology Currently Available (BPT). For most effluent guidelines with toxic and non-conventional pollutants, BAT represents the most stringent guideline and the one that is used in most permitting applications. However, in refinery guidelines there are cases where BPT or BCT is sometimes more stringent than BAT and these limitations are applied to the parameter of concern. BCT is used for conventional pollutants. The final calculations are screened against limitations established in a previous permit by BPJ. These limitations are now BAT for that facility and must be screened against the calculated effluent guideline limitations with the most stringent applying in order to address anti-backsliding concerns (40 CFR 122.44.1, LAC 33.IX.2707.L). The term "Daily Average" as it is used in this documentation and in the spreadsheet is assumed to be equivalent to "Monthly Average". The spreadsheet is set up in a table and column/section format. Each table represents a general category for data input or calculation points. Each reference column or section is marked by a set of parentheses enclosing a number and asterisk, for example (*1) or (*8). These columns or sections represent inputs, existing data sets, calculation points, or results for determining technology based limits for an effluent of concern.

Introductory Notes to Petroleum Refining Effluent Limitations Calculations:Regulatory Basis

Unless otherwise stated, the technology-based permit effluent limitations presented in this appendix are calculated using national effluent limitations and standards listed at 40 CFR Part 419 - Petroleum Refining Point Source Category. Technical data supporting the national effluent limitations and standards for the Petroleum Refining Point Source Category will be found at the following development documents:

1974 Development Document

Development Document for Effluent Limitations Guidelines and New Source Performance Standards for the Petroleum Refining Point Source Category, USEPA, EPA-44011-74-014a, April 1974

1982 Development Document

Development Document for Effluent Limitations Guidelines and New Source Performance Standards for the Petroleum Refining Point Source Category, USEPA, EPA 440/1-82/014, October 1982

Example Calculations

Example calculations for deriving petroleum refining permit effluent limitations will be found at:

40 CFR

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Part 419.42(a)(3)
 Part 419.43(c)(2)

Development Documents

1974 Development Document (Section IX, Pages 148-151)
 1982 Development Document (Section I, Pages 1-14)

1985 Guidance

Guide for the Application of Effluent Limitations Guidelines for the
 Petroleum Refining Industry, USEPA, Industrial Technology Division, June
 1985

Discussion of EPA Refining Processes Used in Calculations

	EPA Process Number
<u>Crude Processes</u>	
Atmospheric Crude Distillation	1
Crude Desalting	2
Vacuum Crude Distillation	3
<u>Cracking and Coking Processes</u>	
Visbreaking	4
Thermal Cracking	5
Fluid Catalytic Cracking	6
Moving Bed Catalytic Cracking	7
Hydrocracking	10
Delayed Coking	15
Fluid Coking	16
Hydrotreating*	54
<u>Lube Processes</u>	
Hydrofining, Hydrofinishing, Lube Hydrofinishing	21
White Oil Manufacture	22
Propane: Dewaxing, Deasphalting, Fractioning, Derinsing	23
Duo Sol, Solvent Treating, Solvent Extraction Duotreating, Solvent Dewaxing, Solvent Deasphalt	24
Lube Vacuum Tower, Oil Fractionation, Batch Still (Naphtha Strip), Bright Stock Treating	25
Centrifuge & Chilling	26
Dewaxing: MEK, Ketone, MEK-Toluene	27
Deoiling (Wax)	28
Naphthenic Lube Production	29
SO ₂ Extraction	30
Wax Pressing	34

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Wax Plant (with Neutral Separation)	35
Furfural Extracting	36
Clay Contacting - Percolation	37
Wax Sweating	38
Acid Treating	39
Phenol Extraction	40

Asphalt Processes

Asphalt Production	18
200 Deg. F Softening Point Unfluxed Asphalt*	32
Asphalt Oxidizing	43
Asphalt Emulsifying	89

Reforming and Alkylation Processes

H ₂ SO ₄ Alkylation*	8
Catalytic Reforming*	12

* These processes are not included in the refinery process configuration factor calculations.

EPA Process Numbers will be found at Appendix A to 40 CFR 419. They can be cross-referenced in Table III-7, pages 49-54 of the 1982 Development Document.

Refining processes used in Table 2 (except as noted) lead to the calculation of all BPT/BCT permit effluent limitations for ammonia (as N), sulfide (as S), and COD only. The Table 2 refining processes are listed at Section IX, Table 51, page 151, of the 1974 Development Document. A detailed discussion of the refining processes used in the refinery process configuration factor (Table 2) is found in the "1974" Flow Model at Section IV, pages 55-62, of the 1974 Development Document and at Section IV, pages 63-65 of the 1982 Development Document. Also see "Process Groupings Included in 1974 Flow Model" at page 19 of the 1985 Guidance. Because certain petroleum refining processes [Hydrotreating; 200 Deg. F Softening Point Unfluxed Asphalt; H₂SO₄ Alkylation; and Catalytic Reforming] were not included in the 1974 flow model, they are not included as a process in the refinery process configuration factor calculations (Table 2). In 1976, the U.S. Court of Appeals upheld the 1974 BPT and NSPS regulations [see discussion at Section IV, pages 61-62, of the 1982 Development Document]. Refining processes not included in the 1974 Flow Model [the basis for all BPT/BCT permit effluent limitations and BAT permit effluent limitations for ammonia (as N), sulfide (as S), and COD only] are not considered in the refinery process configuration factor calculations (Table 2).

Refining processes and categories used in Tables 2 and 5 lead to the calculation of amended BAT permit effluent limitations for total recoverable phenolics, chromium (total), and chromium (6+). These refining processes are listed at Appendix A to 40 CFR Part 419. A detailed discussion of the refining processes used in BAT permit effluent limit calculations will be found in the discussion of the Refined Flow Model at Section IV, pages 67-68, of the 1982 Development Document. Also see "Process Groupings Included in 1979 Flow Model" at page 20 of the 1985 Guidance. Refining processes not included in the 1979 Flow Model

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 Page 4

[the basis for Appendix A to 40 CFR Part 419] are not considered in BAT permit effluent limitations for total recoverable phenolics, chromium (total), and chromium (6+).

Organizations or individuals desiring the inclusion of other refining processes in the previously mentioned calculations should petition the U.S. Environmental Protection Agency under the Administrative Procedures Act, 5-U.S.C. Sec. 553(e), which authorizes interested parties to petition the issuance, amendment, or repeal of a rule.

Table 1

Table 1 is a data input area.

(*1) Facility Information

Generalized input information for the facility:

Permittee- Permittee name.

Permit Number- LPDES permit number.

Concentration flow, (MGD)- If concentration limits are desired, then a flow for determining concentration limits is placed here.

Anti-backsliding, GL vs Old, 0=n, 1=y, 2=GL+Old: This switch establishes how previously established Best Professional Judgement (BPJ) permit limits will be screened. "0" indicates that no screening will occur. "1" indicates that the BPJ-Technology permit limits will be screened. "2" indicates that the guideline values will be added to the previously established BPJ-Technology limitations. This is only used when significant increases in production have occurred since the last permit was issued. Guideline values are calculated only on the basis of the increase.

Outfall number: Generally written as an abbreviation, e.g., "Out. 001".

40 CFR 419 Subpart, (A, B, C, D, or E): The subpart that the spreadsheet uses is specified by putting the designated subpart letter in the indicated cell. Input can be in either lower case or upper case.

Refinery type: The spreadsheet automatically specifies the refinery type, Topping, Cracking, Petrochemical, Lube, or Integrated based on the subpart specified.

(*2) Throughput Rates

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Feedstock (Crude Oil and NGL) Rate to Topping Unit(s): As defined in the guidelines, the term "feedstock" shall mean the crude oil and natural gas liquids (NGL) fed to the topping unit(s).

Process Unit Rates: These values are input in Table 2 on the row indicating the specific process under the column labeled, "Unit Process Rate K bbl/day."

(*3) Flow Rates

Ballast Flow, K gal/day: As defined in the guidelines, "ballast" shall mean the flow of waters, from a ship, that is treated along with refinery wastewaters in the main treatment system. Units as specified.

Stormwater Calculations: The refinery effluent guidelines give an allowance for contaminated runoff. This is calculated using an areal estimate of the process area in either square feet or acres and an annual rainfall estimate in inches.

Process area, sq. ft. (or acres): The process area size is specified in the cell with the appropriate units.

Annual rainfall, inches: Estimate of annual rainfall as specified.

Contaminated stormwater to Treatment System: Input here is optional. This is the calculated value utilizing the process area size and amount of rainfall specified above or a precalculated value (from DMR's or other sources) submitted by the applicant. If you are utilizing a precalculated value, then inputs in the Process area, sq. ft. (or acres): or Annual rainfall, inches: fields are not necessary.

(*4) TOC:BOD5. TOC to BOD5 Ratio. A TOC to BOD5 ratio of 2.2 to 1 is established on a BPJ basis consistent with EPA Region 6 and the refinery effluent guidelines. COD:BOD5 1=y default G/L calculated values for san.

This field is used and will appear only when a sanitary allocation to process wastewaters is being calculated. A "1" placed in this field will take the default COD:BOD5 ratio calculated from the total loadings of COD and BOD5 from the refinery guidelines.

(*5) Discharge fraction, default =1: If the process wastewater is not discharged at 100% through the regulated outfall, then the fraction that is discharged through the regulated outfall is placed here. Examples where a facility may split a process flow include, deep well injection, POTW's, other facilities, etc. This is in accordance with 40 CFR 122.50/LAC 33:IX.2717.

(*6) Sanitary Flow, MGD: On rare occasions sanitary wastewaters are given a flow allocation in MGD. This allocation will be given only to facilities that currently have significant sanitary wastewaters included in their process wastewater BOD5 and TSS allocations. "Significant", in this case,

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is defined when the sanitary wastewaters contribute 5% or more of the total BOD5 or TSS loading of the wastewater treatment system. This allocation will not be given to facilities that have not received this allocation before or facilities adding additional sanitary wastewaters to their process wastewater treatment systems in accordance with anti-backsliding regulations (40 CFR 122.44.1, LAC 33.IX.2707.L). This section will not appear if sanitary wastewater is not granted an allocation.

(*6), (*7) Anti-backsliding Information:

The previous permit limitations established by BPJ (now BAT) are put under the appropriate column (*A) "Avg" for daily maximum 30-day average, and (*B) "Max" for daily maximum on the row with the specified parameter. Column (*C) utilizes the same switches described in section (*1) under the discussion on anti-backsliding. The only difference here is that the switch can be specified on a parameter specific basis. If sanitary wastewater is granted an allocation, this will become section (*7), otherwise it will remain section (*6).

(*7), (*8) Conversion Utilities:

This section contains useful conversions for calculations throughout the spreadsheet. A section is dedicated to calculating COD:BOD5 ratios or inputting COD concentrations in mg/L for the exclusive purpose of calculating COD loadings attributed to sanitary wastewater. As stated above under section (*4), default COD:BOD5 ratios are calculated by dividing total guideline COD loading by total guideline BOD5 loading. The use of a more stringent ratio or concentration in a previously issued permit would preclude using the default calculation procedure. All fields containing information about COD ratios or concentrations will not appear if sanitary wastewaters are not granted an allocation for BOD5. If sanitary wastewater is granted an allocation, this will become section (*8), otherwise it will remain section (*7).

Table 2

Table 2 calculates the total refinery process configuration factor by summing all contributing unit process configuration factors (except processes noted).

- (*1) Specifies refinery processes under 5 different categories, crude processes, cracking and coking processes, lube processes, asphalt processes, and reforming and alkylation processes. Footnoted processes are not included in the total refinery process configuration factor.
- (*2) EPA process number. From Table III-7, Pages 49-54, Final Development Document for Effluent Limitations Guidelines and Standards for the Petroleum Refining Point Source Category, EPA 440/1-82/014, October, 1982.
- (*3) Unit Process Rate, K bbl/day. Process rate is placed on the row with the specified process. Unit process rates are summed for each process group

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for use in determining BAT limitations for Total Chromium, Chromium (6+), and Total Recoverable Phenolics in Table 6.

- (*4) Total Feedstock Rate, K bbl/day. This column contains the value specified in section (*2) of Table 1.
- (*5) Unit Process Rate to Feedstock Rate Ratio. The unit process rate is divided by the feedstock rate specified in column (*4).
- (*6) Weighting factor. The spreadsheet uses the weighting factors specified at 40 CFR 419.42(b)(3), Subpart D.
- (*7) Unit process configuration factor. The product in this column is the result of multiplying the "Unit Process Rate to Feedstock Rate Ratio" in column (*5) times the weighting factor specified in column (*6). These values are summed to obtain the total refinery process configuration factor.

Tables 3 and 4

Tables 3 and 4 calculate the process and size factors respectively. The input for determining the appropriate process factor is the total refinery process configuration factor. The input for determining the appropriate size factor is the feedstock in K bbl/day. The multiplier used in determining mass loadings for certain parameters specified in Table 6 is determined by multiplying the feedstock times the process factor times the size factor.

Table 5

Table 5 summarizes the process group feedstock rates (crude, cracking and coking, lube, asphalt, reforming and alkylation) specified in Table 2 for use in calculating BAT limitations for Total Recoverable Phenolics (specified as Total Phenolics), Total Chromium, and Chromium (6+) in Table 6.

Table 6

Table 6 is where mass loadings are calculated for each parameter under each applicable wastewater type; process, ballast, stormwater (contaminated) and sanitary wastewaters, when applicable. For Total Recoverable Phenolics (specified as Total Phenolics), Total Chromium, and Chromium (6+), mass loadings are calculated twice under the process wastewater section, once with BPT factors and once with BAT factors with the most stringent applying.

- (*1) Parameter.
- (*2) References. 40 CFR reference applicable to the specified factors and subparts in columns (*4) and (*5).

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- (*3) Treatmt. Tech. Applicable treatment technology, BPT, BCT, or BPT, for the parameter and factors specified. BPJ is applied to sanitary wastewaters, when sanitary wastewater is granted an allocation.
- (*4) Factor, Avg. Daily average (daily maximum 30-day average) factors specified in the guidelines. Sanitary wastewater would be granted a flow based allocation of 30 mg/L for BOD₅ and TSS, when applicable.
- (*5) Factor, Max. Daily maximum factors specified in the guidelines. Sanitary wastewater would be granted a flow based allocation of 45 mg/L for BOD₅ and TSS, when applicable.
- (*6) Multiplier/Table 2 Group Feedstock Rate, K bbl/day/Flow K gal/day. For the process wastewater, this column contains the multiplier calculated under Tables 3 and 4 or the applicable group feedstock rate from Table 2 in 1000 barrels per day (K bbl/day). For ballast, sanitary (when applicable), and stormwater, flow in 1000 gallons per day (except sanitary in MGD) from the data input table, Table 1.
- (*7) Discharge fraction through outfall. This column contains the factor calculated in section (*5) of Table 1.
- (*8) Daily average (daily maximum 30-day average) loadings in lbs per day for the specified parameter under the specified subpart.
- (*9) Daily maximum loadings in lbs per day for the specified parameter under the specified subpart.

Table 7

Table 7 is a data summary table totaling the allocations from process wastewater, ballast water, contaminated stormwater, and sanitary wastewater (when applicable). The total values represent the refinery effluent guideline limitations.

- (*1) Process wastewater daily average (daily maximum 30-day average) loadings in lbs per day for the specified parameter under the specified subpart.
- (*2) Process wastewater daily maximum loadings in lbs per day for the specified parameter under the specified subpart.
- (*3) Ballast water daily average (daily maximum 30-day average) loadings in lbs per day for the specified parameter under the specified subpart.
- (*4) Ballast water daily maximum loadings in lbs per day for the specified parameter under the specified subpart.
- (*5) Contaminated stormwater daily average (daily maximum 30-day average) loadings in lbs per day for the specified parameter under the specified subpart.

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- (*6) Contaminated stormwater daily maximum loadings in lbs per day for the specified parameter under the specified subpart.
- (*7) Sanitary wastewater daily average (daily maximum 30-day average) loadings in lbs per day for the specified parameter. This column will not appear if sanitary wastewater is not granted an allocation.
- (*8) Sanitary wastewater daily maximum loadings in lbs per day for the specified parameter. This column will not appear if sanitary wastewater is not granted an allocation.
- (*7, *9) Total daily average (daily maximum 30-day average) loadings in lbs per day for the specified parameter under the specified subpart. If sanitary wastewater is granted an allocation, this will become column (*9), otherwise it will remain column (*7).
- (*8, *10) Total daily maximum loadings in lbs per day for the specified parameter under the specified subpart. If sanitary wastewater is granted an allocation, this will become column (*10), otherwise it will remain column (*7).

Table 8

Table 8 is utilized when anti-backsliding (40 CFR 122.44.1, LAC 33.IX.2707.L) concerns are present. The effluent limitation guideline values are screened against BPJ-Technology values from the previous permit with the most stringent applying.

- (*1) Parameter.
- (*2) Daily average effluent limitation guideline in lbs/day from column (*7) in Table 7.
- (*3) Daily maximum effluent limitation guideline in lbs/day from column (*8) Table 7.
- (*4) Daily Average Tech Old in lbs/day. This column is utilized when an anti-backsliding concern (40 CFR 122.44.1, LAC 33.IX.2707.L) is present. This would be indicated by substantially higher limits ($\approx 30\%$ or greater) calculated under guidelines than those previously established in the old permit on a BPJ basis. If the previously issued permit (as applicable) contains limits for the parameter of concern and an anti-backsliding concern is present, the limits from the previously issued permit are placed in this column in lbs/day.
- (*5) Daily Maximum Tech Old in lbs/day. Similar to (*7).
- (*6) Antiback, 0=no scr., 1=OldvsGL, 2=Old+GL. Anti-Backsliding screening switch. The default is set not to screen. This can be changed under

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section (*1) in the data input page. If a screen is conducted, a "1" will appear in this column. The more stringent permit limits will appear in columns (*7) and (*8). If the screen indicates that the previously issued permit limit utilizing BPJ-Technology is more stringent and an increase in production has occurred, the technology based limits can be recalculated using guidelines for the increase only. This will be indicated by a "2" in this column. The recalculated guideline limitations in columns (*2) and (*3) are subsequently added to the values in columns (*4) and (*5) yielding technology-based effluent limitations in columns (*7) and (*8). The values in this column can be changed on a row-by-row basis for site-specific screening situations.

- (*7) Daily Average technology based effluent limit in lbs/day. If no anti-backsliding screening is conducted then the value in this column will be equal to the value in column (*2). When anti-backsliding screening is used, see discussion for column (*6).
- (*8) Daily Maximum technology based effluent limit in lbs/day. If no anti-backsliding screening is conducted then the value in this column will be equal to the value in column (*3). When anti-backsliding screening is used, see discussion for column (*6).
- (*9) Daily Average technology based effluent limit in mg/L. A concentration limit can be calculated using the specified concentration flow from section (*1) under the data input table and the mass limitation calculated under column (*7). The formula is as follows:

$$\frac{\text{effluent limit, lbs/day}}{\text{flow, MGD} \times 8.34}$$

- (*10) Daily Maximum technology based effluent limit in mg/L. Similar to column (*9), a concentration limit can be calculated using the specified concentration flow from section (*1) under the data input table and the mass limitation calculated under column (*8). The formula is as follows:

$$\frac{\text{effluent limit, lbs/day}}{\text{flow, MGD} \times 8.34}$$

Appendix B

wqsmoan.wk4 Date: 11/24 Appendix B-1
 Developer: Bruce Fielding Time: 07:59 AM
 Software: Lotus 4.0 LA0003115, AI2418
 Revision date: 04/01/08

Page 1

Water Quality Screen for ConocoPhillips Company / Alliance Refinery

Input variables:

Receiving Water Characteristics:

Dilution:

Toxicity Dilution Series:

Receiving Water Name= Mississippi River
 Critical flow (Qr) cfs= 141955 MZ Fs = 0.333333
 Harm. mean/avg tidal cfs= 366748 Critical Qr (MGD)=91745.52
 Drinking Water=1 HHNPCR=2 1 Harm. Mean (MGD)= 237029.2
 MW=1, BW=2, O=n ZID Dilution = 0.0109
 Rec. Water Hardness= 152 MZ Dilution = 0.001101
 Rec. Water TSS= 16 HHnc Dilution= 0.000367
 Fisch/Specific=1,Stream=0 HHc Dilution= 0.000142
 Diffuser Ratio= ZID Upstream = 90.7473
 MZ Upstream = 907.473

Biomonitoring dilution: 0.011007
 Dilution Series Factor: 0.75

Percent Effluent

Dilution No. 1 1.468%
 Dilution No. 2 1.1007%
 Dilution No. 3 0.8256%
 Dilution No. 4 0.6192%
 Dilution No. 5 0.4644%

Effluent Characteristics:

MZhhnc Upstream= 2722.419

Partition Coefficients; Dissolved-->Total

Permittee= ConocoPhillips Company / Alliance Refinery
 Permit Number= LA0003115, AI2418
 Facility flow (Qef),MGD= 33.7 MZhhc Upstream= 7033.508

METALS FW
 Total Arsenic 2.014737
 Total Cadmium 3.789487
 Chromium III 5.079695
 Chromium VI 1
 Total Copper 3.138477
 Total Lead 5.875083
 Total Mercury 2.967076
 Total Nickel 2.614238
 Total Zinc 3.871746

Outfall Number = 001
 Eff. data, 2-lbs/day 2
 MQL, 2-lbs/day 1
 Effluent Hardness= N/A
 Effluent TSS= N/A
 WQBL ind. 0=y, 1=n
 Acute/Chr. ratio 0=n, 1=y 1
 Aquatic,acute only1=y,0=n

ZID Hardness= ---
 MZ Hardness= ---
 ZID TSS= ---
 MZ TSS= ---
 Multipliers:
 WLaa --> LTAA 0.32
 WLAc --> LTAC 0.53
 LTA a,c-->WQBL avg 1.31
 LTA a,c-->WQBL max 3.11
 LTA h --> WQBL max 2.38
 WQBL-limit/report 2.13
 WLA Fraction 1
 WQBL Fraction 1

Aquatic Life, Dissolved

Metal Criteria, ug/L

METALS ACUTE CHRONIC
 Arsenic 339.8 150
 Cadmium 50.05776 1.404782
 Chromium III 773.2057 250.8199
 Chromium VI 15.712 10.582
 Copper 27.33802 17.56809
 Lead 101.5627 3.957751
 Mercury 1.734 0.012
 Nickel 2017.069 224.0117
 Zinc 163.1856 149.0132

Page Numbering/Labeling

Appendix Appendix B-1
 Page Numbers 1=y, 0=n 1
 Input Page # 1=y, 0=n 1

Conversions:
 ug/L-->lbs/day Qef0.281058
 ug/L-->lbs/day Qco 0
 ug/L-->lbs/day Qr 1183.905
 lbs/day-->ug/L Qeo3.557984
 lbs/day-->ug/L Qef3.557984
 diss-->tot 1=y0=n 1
 Cu diss-->tot1=y0=n 1
 cfs-->MGD 0.6463

Site Specific Multiplier Values:

CV = ---
 N = ---
 WLaa --> LTAA ---
 WLAc --> LTAC ---
 LTA a,c-->WQBL avg ---
 LTA a,c-->WQBL max ---
 LTA h --> WQBL max ---

Fischer/Site Specific inputs:

Pipe=1,Canal=2,Specific=3
 Pipe width, feet
 ZID plume dist., feet
 MZ plume dist., feet
 HHnc plume dist., feet
 HHc plume dist., feet

Fischer/site specific dilutions:

F/specific ZID Dilution = ---
 F/specific MZ Dilution = ---
 F/specific HHnc Dilution= ---
 F/specific HHc Dilution= ---

Receiving Stream:
 Default Hardness= 25
 Default TSS= 10
 99 Crit., 1=y, 0=n 1

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Page 2

ConocoPhillips Company / Alliance Refinery

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(*1)	(*2)	(*3)	(*4)	(*5)	(*6)	(*7)	(*8)	(*9)	(*10)	(*11)
Toxic Parameters	Instream	CuEffluent /Tech	Effluent /Tech	MQLEffluent	95th %	estimate	Numerical Criteria		HH	
	Conc.	(Avg)	(Max)	1-No 95 %	0-95 %	Non-Tech	Acute FW	Chronic FW	HHDW	Carcinogen Indicator
	ug/L	lbs/day	lbs/day	ug/L		lbs/day	ug/L	ug/L	ug/L	*C*
NONCONVENTIONAL										
Total Phenols (4AAP)		14.74717	30.33821	5		1	700	350	5	
3-Chlorophenol				10					0.1	
4-Chlorophenol				10			383	192	0.1	
2,3-Dichlorophenol				10					0.04	
2,5-Dichlorophenol				10					0.5	
2,6-Dichlorophenol				10					0.2	
3,4-Dichlorophenol				10					0.3	
2,4-Dichlorophenocetic acid (2,4-D)				---					100	
2-(2,4,5-Trichlorophenoxy) propionic acid (2,4,5-TP, Silvex)				---					10	
METALS AND CYANIDE										
Total Arsenic		2.7		10		0	5.751 684.6077	302.2106	100.7369	
Total Cadmium		0.3		1		0	0.639 189.6932	5.323403	37.89487	
Chromium III				10			3927.649	1274.089	253.9847	
Chromium VI		1.600371	3.600753	10		1	15.712	10.582	50	C
Total Copper		2.7		10		0	5.751 85.79973	55.13703	3138.477	
Total Lead		1.4		5		0	2.982 596.689	23.25212	293.7542	
Total Mercury		0.05		0.2		0	0.1065 5.14491	0.035605	5.934153	
Total Nickel		10.8		40		0	23.004 5273.1	585.6201		
Total Zinc		19.8		20		0	42.174 631.8133	576.9413	19358.73	
Total Cyanide		2.7		20		0	5.751 45.9	5.4	663.8	
DIOXIN										
2,3,7,8 TCDD; dioxin				1.0E-005					7.1E-007	C
VOLATILE COMPOUNDS										
Benzene				10			2249	1125	1.1	C
Bromoform				10			2930	1465	3.9	C
Bromodichloromethane				10					0.2	C
Carbon Tetrachloride				10			2730	1365	0.22	C
Chloroform				10			2890	1445	5.3	C
Dibromochloromethane				10					0.39	C
1,2-Dichloroethane				10			11800	5900	0.36	C
1,1-Dichloroethylene				10			1160	580	0.05	C
1,3-Dichloropropylene				10			606	303	9.86	
Ethylbenzene				10			3200	1600	2390	
Methyl Chloride				50			55000	27500		
Methylene Chloride				20			19300	9650	4.4	C
1,1,2,2-Tetrachloroethane				10			932	466	0.16	C

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ConocoPhillips Company / Alliance Refinery

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(*1)	(*12)	(*13)	(*14)	(*15)	(*16)	(*17)	(*18)	(*19)	(*20)	(*21)	(*22)	(*23)
Toxic	WLAa	WLAc	WLAh	LTAa	LTAc	LTAh	Limiting	WQBL	WQBL	WQBL	WQBL	Need
Parameters	Acute	Chronic	HHDW	Acute	Chronic	HHDW	A,C,HH	Avg	Max	Avg	Max	WQBL?
	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	001	001	001	001	
NONCONVENTIONAL												
Total Phenols (4AAP)	64223.11	317965.5	13617.09	20551.39	168521.7	13617.09	13617.09	13617.09	32408.68	3827.193	9108.72	no
3-Chlorophenol	---	---	272.3419	---	---	272.3419	272.3419	272.3419	648.1737	76.54387	182.1744	no
4-Chlorophenol	35139.21	174426.8	272.3419	11244.55	92446.21	272.3419	272.3419	272.3419	648.1737	76.54387	182.1744	no
2,3-Dichlorophenol	---	---	108.9368	---	---	108.9368	108.9368	108.9368	259.2695	30.61755	72.86976	no
2,5-Dichlorophenol	---	---	1361.709	---	---	1361.709	1361.709	1361.709	3240.868	382.7193	910.872	no
2,6-Dichlorophenol	---	---	544.6838	---	---	544.6838	544.6838	544.6838	1296.347	153.0877	364.3488	no
3,4-Dichlorophenol	---	---	817.0257	---	---	817.0257	817.0257	817.0257	1944.521	229.6316	546.5232	no
2,4-Dichlorophenoc-	---	---	---	---	---	---	---	---	---	---	---	---
acetic acid (2,4-D)	---	---	272341.9	---	---	272341.9	272341.9	272341.9	648173.7	76543.87	182174.4	no
2-(2,4,5-Trichlorophen-	---	---	---	---	---	---	---	---	---	---	---	---
oxy) propionic acid	---	---	---	---	---	---	---	---	---	---	---	---
(2,4,5-TP, Silvex)	---	---	27234.19	---	---	27234.19	27234.19	27234.19	64817.37	7654.387	18217.44	no
METALS AND CYANIDE												
Total Arsenic	62810.91	274550.2	274348.7	20099.49	145511.6	274348.7	20099.49	26330.33	62509.42	7400.351	17568.77	no
Total Cadmium	17403.84	4836.167	103203.6	5569.23	2563.169	103203.6	2563.169	3357.751	7971.455	943.7228	2240.441	no
Chromium III	360351.2	1157475	691706.8	115312.4	613461.8	691706.8	115312.4	151059.2	358621.5	42456.4	100793.4	no
Chromium VI	1441.534	9613.461	351725.4	461.2907	5095.134	351725.4	461.2907	604.2909	1434.614	169.8408	403.2098	no
Total Copper	7871.893	50090.5	8547387	2519.006	26547.96	8547387	2519.006	3299.897	7834.108	927.4626	2201.839	no
Total Lead	54744.61	21123.92	800015.6	17518.27	11195.68	800015.6	11195.68	14666.34	34818.55	4122.091	9786.033	no
Total Mercury	472.0316	32.3461	16161.18	151.0501	17.14343	16161.18	17.14343	22.4579	53.31608	6.311972	14.98491	no
Total Nickel	483792.7	532020	---	154813.7	281970.6	---	154813.7	202805.9	481470.5	57000.22	135321.1	no
Total Zinc	57967.16	524135.6	5.3E+007	18549.49	277791.9	5.3E+007	18549.49	24299.83	57688.92	6829.663	16213.93	no
Total Cyanide	4211.201	4905.754	1807805	1347.584	2600.05	1807805	1347.584	1765.335	4190.987	496.1616	1177.91	no
DIOXIN												
2,3,7,8 TCDD; dioxin	---	---	0.004995	---	---	0.004995	0.004995	0.004995	0.011887	0.001404	0.003341	no
VOLATILE COMPOUNDS												
Benzene	206339.7	1022032	7737.959	66028.69	541677	7737.959	7737.959	7737.959	18416.34	2174.815	5176.061	no
Bromoform	268819.6	1330913	27434.58	86022.26	705383.8	27434.58	27434.58	27434.58	65294.31	7710.709	18351.49	no
Bromodichloromethane	---	---	1406.902	---	---	1406.902	1406.902	1406.902	3348.426	395.421	941.1019	no
Carbon Tetrachloride	250470.1	1240066	1547.592	80150.44	657234.8	1547.592	1547.592	1547.592	3683.269	434.9631	1035.212	no
Chloroform	265149.7	1312743	37282.89	84847.9	695754	37282.89	37282.89	37282.89	88733.29	10478.66	24939.2	no
Dibromochloromethane	---	---	2743.458	---	---	2743.458	2743.458	2743.458	6529.431	771.0709	1835.149	no
1,2-Dichloroethane	1082618	5359990	2532.423	346437.8	2840795	2532.423	2532.423	2532.423	6027.167	711.7577	1693.983	no
1,1-Dichloroethylene	106426.9	526914.3	351.7254	34056.6	279264.6	351.7254	351.7254	351.7254	837.1065	98.85524	235.2755	no
1,3-Dichloropropylene	55598.86	275267.3	26852.91	17791.64	145891.7	26852.91	17791.64	23307.04	55331.99	6550.631	15551.5	no
Ethylbenzene	293591.3	1453557	6508971	93949.23	770385.1	6508971	93949.23	123073.5	292182.1	34590.79	82120.12	no
Methyl Chloride	5046101	2.5E+007	---	1614752	1.3E+007	---	1614752	2115326	5021880	594529.2	1411440	no
Methylene Chloride	1770723	8766764	30951.84	566631.3	4646385	30951.84	30951.84	30951.84	73665.37	8699.261	20704.24	no
1,1,2,2-Tetrachloro-	---	---	---	---	---	---	---	---	---	---	---	---
ethane	85508.48	423348.4	1125.521	27362.71	224374.7	1125.521	1125.521	1125.521	2678.741	316.3368	752.8815	no

[illegible]

	(*1)	(*12)	(*13)	(*14)	(*15)	(*16)	(*17)	(*18)	(*19)	(*20)	(*21)	(*22)	(*23)
Toxic Parameters	WLaA	WLAc	WLAh	LTAA	LTAc	LTAh	Limiting	WQBL	WQBL	WQBL	WQBL	Need	
	Acute	Chronic	HHDW	Acute	Chronic	HHDW	A,C,HH	Avg	Max	Avg	Max	WQBL?	
	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	lbs/day	lbs/day		
Tetrachloroethylene	118354	585965.1	4572.43	37873.28	310561.5	4572.43	4572.43	4572.43	10882.38	1285.118	3058.581	no	
Toluene	116519.1	576880.3	1.7E+007	37286.1	305746.6	1.7E+007	37286.1	48844.79	115959.8	13728.22	32591.42	no	
1,1,1-Trichloroethane	484425.7	2398369	544683.8	155016.2	1271135	544683.8	155016.2	203071.3	482100.5	57074.8	135498.2	no	
1,1,2-Trichloroethane	165145.1	817625.7	3939.325	52846.44	433341.6	3939.325	3939.325	3939.325	9375.593	1107.179	2635.085	no	
Trichloroethylene	357814.5	1771522	19696.62	114500.6	938906.8	19696.62	19696.62	19696.62	46877.96	5535.894	13175.43	no	
Vinyl Chloride	---	---	13365.57	---	---	13365.57	13365.57	13365.57	31810.05	3756.499	8940.468	no	
ACID COMPOUNDS													
2-Chlorophenol	23670.8	117193	272.3419	7574.657	62112.3	272.3419	272.3419	272.3419	648.1737	76.54387	182.1744	no	
2,4-Dichlorophenol	18532.95	91755.77	817.0257	5930.545	48630.56	817.0257	817.0257	817.0257	1944.521	229.6316	546.5232	no	
BASE NEUTRAL COMPOUNDS													
Benzidine	22936.82	113559.1	0.562761	7339.784	60186.33	0.562761	0.562761	0.562761	1.33937	0.158168	0.376441	no	
Hexachlorobenzene	---	---	1.758627	---	---	1.758627	1.758627	1.758627	4.185532	0.494276	1.176377	no	
Hexachlorabutadiene	467.9112	926.6424	633.1058	149.7316	491.1205	633.1058	149.7316	196.1484	465.6652	55.12907	130.8789	no	
PESTICIDES													
Aldrin	275.2419	---	0.28138	88.0774	---	0.28138	0.28138	0.28138	0.669685	0.079084	0.18822	no	
Hexachlorocyclohexane (gamma BHC, Lindane)	486.2607	190.7793	773.7959	155.6034	101.113	773.7959	101.113	132.4581	314.4616	37.2284	88.38194	no	
Chlordane	220.1935	3.906434	1.336557	70.46192	2.07041	1.336557	1.336557	1.336557	3.181005	0.37565	0.894047	no	
4,4'-DDT	100.922	0.908473	1.336557	32.29505	0.481491	1.336557	0.481491	0.630753	1.497436	0.177278	0.420866	no	
4,4'-DDE	4816.733	9538.966	1.336557	1541.355	5055.652	1.336557	1.336557	1.336557	3.181005	0.37565	0.894047	no	
4,4'-DDD	2.752419	5.450838	1.899317	0.880774	2.888944	1.899317	0.880774	1.153814	2.739207	0.324289	0.769876	no	
Dieldrin	21.78081	50.60194	0.351725	6.969859	26.81903	0.351725	0.351725	0.351725	0.837106	0.098855	0.235275	no	
Endosulfan	20.18441	50.87449	1280.007	6.45901	26.96348	1280.007	6.45901	8.461303	20.08752	2.378117	5.645758	no	
Endrin	7.926966	34.06774	708.0889	2.536629	18.0559	708.0889	2.536629	3.322984	7.888917	0.933951	2.217243	no	
Heptachlor	47.70859	3.452197	0.492416	15.26675	1.829665	0.492416	0.492416	0.492416	1.171949	0.138397	0.329386	no	
Toxaphene	66.97553	0.181695	1.688282	21.43217	0.096298	1.688282	0.096298	0.126151	0.299487	0.035456	0.084173	no	
Other Parameters:													
Fecal Col. (col/100ml)	---	---	---	---	---	---	---	---	---	---	---	no	
Chlorine	1743.199	9993.203	---	557.8236	5296.397	---	557.8236	730.7489	1734.831	205.3828	487.5882	no	
Ammonia	---	3633892	---	---	1925963	---	1925963	2523011	5989744	709112.5	1683465	no	
Chlorides	---	---	---	---	---	---	---	---	---	---	---	no	
Sulfates	---	---	---	---	---	---	---	---	---	---	---	no	
TDS	---	---	---	---	---	---	---	---	---	---	---	no	
	---	---	---	---	---	---	---	---	---	---	---	no	
	---	---	---	---	---	---	---	---	---	---	---	no	

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Documentation and Explanation of Water Quality Screen
and Associated Lotus Spreadsheet

Each reference column is marked by a set of parentheses enclosing a number and asterisk, for example (*1) or (*19). These columns represent inputs, existing data sets, calculation points, and results for determining Water Quality Based Limits for an effluent of concern. The following represents a summary of information used in calculating the water quality screen:

Receiving Water Characteristics:

Receiving Water: Mississippi River
Critical Flow, Qrc (cfs): 141,955
Harmonic Mean Flow, Qrh (cfs): 366, 748
Segment No.: 070301
Receiving Stream Hardness (mg/L): 152
Receiving Stream TSS (mg/L): 16
MZ Stream Factor, Fs: 0.33333
Plume distance, Pf: N/A

Effluent Characteristics:

Company: ConocoPhillips Company
Facility flow, Qe (MGD): 33.7
Effluent Hardness: N/A
Effluent TSS: N/A
Pipe/canal width, Pw: N/A
Permit Number: LA0003115

Variable Definition:

Qrc, critical flow of receiving stream, cfs
Qrh, harmonic mean flow of the receiving stream, cfs
Pf = Allowable plume distance in feet, specified in LAC 33.IX.1115.D
Pw = Pipe width or canal width in feet
Qe, total facility flow, MGD
Fs, stream factor from LAC.IX.33.11 (1 for harmonic mean flow)
Cu, ambient concentration, ug/L
Cr, numerical criteria from LAC.IX.1113, Table 1
WLA, wasteload allocation
LTA, long term average calculations
WQBL, effluent water quality based limit
ZID, Zone of Initial Dilution in % effluent
MZ, Mixing Zone in % effluent

Formulas used in aquatic life water quality screen (dilution type WLA):

Streams:

$$\text{Dilution Factor} = \frac{Q_e}{(Q_{rc} \times 0.6463 \times F_s + Q_e)}$$

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$$\text{WLA a,c,h} = \frac{\text{Cr}}{\text{Dilution Factor}} - \frac{(\text{Fs} \times \text{Qrc} \times 0.6463 \times \text{Cu})}{\text{Qe}}$$

Static water bodies (in the absence of a site specific dilution):

Discharge from a pipe:

Discharge from a canal:

$$\text{Critical Dilution} = \frac{(2.8) \text{ Pw } \pi^{1/2}}{\text{Pf}}$$

$$\text{Critical Dilution} = \frac{(2.38) (\text{Pw}^{1/2})}{(\text{Pf})^{1/2}}$$

$$\text{WLA} = \frac{(\text{Cr}-\text{Cu}) \text{ Pf}}{(2.8) \text{ Pw } \pi^{1/2}}$$

$$\text{WLA} = \frac{(\text{Cr}-\text{Cu}) \text{ Pf}^{1/2}}{2.38 \text{ Pw}^{1/2}}$$

Formulas used in human health water quality screen, human health non-carcinogens (dilution type WLA):

Streams:

$$\text{Dilution Factor} = \frac{\text{Qe}}{(\text{Qrc} \times 0.6463 + \text{Qe})}$$

$$\text{WLA a,c,h} = \frac{\text{Cr}}{\text{Dilution Factor}} - \frac{(\text{Qrc} \times 0.6463 \times \text{Cu})}{\text{Qe}}$$

Formulas used in human health water quality screen, human health carcinogens (dilution type WLA):

$$\text{Dilution Factor} = \frac{\text{Qe}}{(\text{Qrh} \times 0.6463 + \text{Qe})}$$

$$\text{WLA a,c,h} = \frac{\text{Cr}}{\text{Dilution Factor}} - \frac{(\text{Qrh} \times 0.6463 \times \text{Cu})}{\text{Qe}}$$

Static water bodies in the absence of a site specific dilution (human health carcinogens and human health non-carcinogens):

Discharge from a pipe:

Discharge from a canal:

$$\text{Critical Dilution} = \frac{(2.8) \text{ Pw } \pi^{1/2}}{\text{Pf}}$$

$$\text{Critical Dilution} = \frac{(2.38) (\text{Pw}^{1/2})}{(\text{Pf})^{1/2}}$$

$$\text{WLA} = \frac{(\text{Cr}-\text{Cu}) \text{ Pf}^*}{(2.8) \text{ Pw } \pi^{1/2}}$$

$$\text{WLA} = \frac{(\text{Cr}-\text{Cu}) \text{ Pf}^{1/2*}}{2.38 \text{ Pw}^{1/2}}$$

* Pf is set equal to the mixing zone distance specified in LAC 33:IX.1115 for the static water body type, i.e., lake, estuary, Gulf of Mexico, etc.

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If a site specific dilution is used, WLA are calculated by subtracting Cu from Cr and dividing by the site specific dilution for human health and aquatic life criteria.

$$WLA = \frac{(Cr - Cu)}{\text{site specific dilution}}$$

Longterm Average Calculations:

$$LTAA = WLAa \times 0.32$$

$$LTAc = WLAc \times 0.53$$

$$LTAh = WLAh$$

WQBL Calculations:

Select most limiting LTA to calculate daily max and monthly avg WQBL

If aquatic life LTA is more limiting:

$$\text{Daily Maximum} = \text{Min}(LTAA, LTAc) \times 3.11$$

$$\text{Monthly Average} = \text{Min}(LTAc, LTAh) \times 1.31$$

If human health LTA is more limiting:

$$\text{Daily Maximum} = LTAh \times 2.38$$

$$\text{Monthly Average} = LTAh$$

Mass Balance Formulas:

$$\text{mass (lbs/day)}: (\text{ug/L}) \times 1/1000 \times (\text{flow, MGD}) \times 8.34 = \text{lbs/day}$$

$$\text{concentration(ug/L)}: \frac{\text{lbs/day}}{(\text{flow, MGD}) \times 8.34 \times 1/1000} = \text{ug/L}$$

The following is an explanation of the references in the spreadsheet.

- (*1) Parameter being screened.
- (*2) Instream concentration for the parameter being screened in ug/L. In the absence of accurate supporting data, the instream concentration is assumed to be zero (0).
- (*3) Monthly average effluent or technology value in concentration units of ug/L or mass units of lbs/day. Units determined on a case-by-case basis as appropriate to the particular situation.
- (*4) Daily maximum technology value in concentration units of ug/L or mass units of lbs/day. Units determined on a case-by-case basis as appropriate to the particular situation.
- (*5) Minimum analytical Quantification Levels (MQL's). Established in a letter dated January 27, 1994 from Wren Stenger of EPA Region 6 to Kilren Vidrine of LDEQ and from the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". The applicant must test for the parameter at a level at least as sensitive as the specified MQL. If this is not done, the MQL becomes the application value for screening purposes if the pollutant is suspected to be present on-site and/or in the

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waste stream. Units are in ug/l or lbs/day depending on the units of the effluent data.

- (*6) States whether effluent data is based on 95th percentile estimation. A "1" indicates that a 95th percentile approximation is being used, a "0" indicates that no 95th percentile approximation is being used.
- (*7) 95th percentile approximation multiplier (2.13). The constant, 2.13, was established in memorandum of understanding dated October 8, 1991 from Jack Ferguson, of Region 6 to Jesse Chang of LDEQ and included in the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". This value is screened against effluent Water Quality Based Limits established in columns (*18) - (*21). Units are in ug/l or lbs/day depending on the units of the measured effluent data.
- (*8) LAC 33.IX.1113.C.6, Table 1, Numerical Criteria for Specific Toxic Substances, freshwater (FW) or marine water (MW) (whichever is applicable) aquatic life protection, acute criteria. Units are specified. Some metals are hardness dependent. The hardness of the receiving stream shall generally be used, however a flow weighted hardness may be determined in site-specific situations. Dissolved metals are converted to Total metals using partition coefficients in accordance with the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". Similar to hardness, the TSS of the receiving stream shall generally be used, however, a flow weighted TSS may be determined in site-specific situations.

Hardness Dependent Criteria:

<u>Metal</u>	<u>Formula</u>
Cadmium	$e^{(1.1280(\ln(\text{hardness})) - 1.6774)}$
Chromium III	$e^{(0.8190(\ln(\text{hardness})) + 3.6880)}$
Copper	$e^{(0.9422(\ln(\text{hardness})) - 1.3884)}$
Lead	$e^{(1.2730(\ln(\text{hardness})) - 1.4600)}$
Nickel	$e^{(0.8460(\ln(\text{hardness})) + 3.3612)}$
Zinc	$e^{(0.8473(\ln(\text{hardness})) + 0.8604)}$

Dissolved to Total Metal Multipliers for Freshwater Streams (TSS dependent):

<u>Metal</u>	<u>Multiplier</u>
Arsenic	$1 + 0.48 \times \text{TSS}^{-0.73} \times \text{TSS}$
Cadmium	$1 + 4.00 \times \text{TSS}^{-1.13} \times \text{TSS}$
Chromium III	$1 + 3.36 \times \text{TSS}^{-0.93} \times \text{TSS}$
Copper	$1 + 1.04 \times \text{TSS}^{-0.74} \times \text{TSS}$
Lead	$1 + 2.80 \times \text{TSS}^{-0.80} \times \text{TSS}$
Mercury	$1 + 2.90 \times \text{TSS}^{-1.14} \times \text{TSS}$
Nickel	$1 + 0.49 \times \text{TSS}^{-0.57} \times \text{TSS}$
Zinc	$1 + 1.25 \times \text{TSS}^{-0.70} \times \text{TSS}$

Dissolved to Total Metal Multipliers for Marine Environments (TSS dependent):

<u>Metal</u>	<u>Multiplier</u>
--------------	-------------------

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Copper	$1 + (10^{4.86} \times \text{TSS}^{-0.72} \times \text{TSS}) \times 10^{-6}$
Lead	$1 + (10^{6.06} \times \text{TSS}^{-0.85} \times \text{TSS}) \times 10^{-6}$
Zinc	$1 + (10^{5.36} \times \text{TSS}^{-0.52} \times \text{TSS}) \times 10^{-6}$

If a metal does not have multiplier listed above, then the dissolved to total metal multiplier shall be 1.

- (*9) LAC 33.IX.1113.C.6, Table 1, Numerical Criteria for Specific Toxic Substances, freshwater (FW) or marine water (MW) (whichever is applicable) aquatic life protection, chronic criteria. Units are specified. Some metals are hardness dependent. The hardness of the receiving stream shall generally be used, however a flow weighted hardness may be determined in site-specific situations. Dissolved metals are converted to Total metals using partition coefficients in accordance with the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". Similar to hardness, the TSS of the receiving stream shall generally be used, however, a flow weighted TSS may be determined in site-specific situations.

Hardness dependent criteria:

<u>Metal</u>	<u>Formula</u>
Cadmium	$e^{(0.7852[\ln(\text{hardness})] - 3.4900)}$
Chromium III	$e^{(0.8473[\ln(\text{hardness})] + 0.7614)}$
Copper	$e^{(0.8545[\ln(\text{hardness})] - 1.3860)}$
Lead	$e^{(1.2730[\ln(\text{hardness})] - 4.7050)}$
Nickel	$e^{(0.8460[\ln(\text{hardness})] + 1.1645)}$
Zinc	$e^{(0.8473[\ln(\text{hardness})] + 0.7614)}$

Dissolved to total metal multiplier formulas are the same as (*8), acute numerical criteria for aquatic life protection.

- (*10) LAC 33.IX.1113.C.6, Table 1, Numerical Criteria for Specific Toxic Substances, human health protection, drinking water supply (HHDW), non-drinking water supply criteria (HHNDW), or human health non-primary contact recreation (HHNPCR) (whichever is applicable). A DEQ and EPA approved Use Attainability Analysis is required before HHNPCR is used, e.g., Monte Sano Bayou. Units are specified.
- (*11) C if screened and carcinogenic. If a parameter is being screened and is carcinogenic a "C" will appear in this column.
- (*12) Wasteload Allocation for acute aquatic criteria (WLAa). Dilution type WLAa is calculated in accordance with the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". Negative values indicate that the receiving water is not meeting the acute aquatic numerical criteria for that parameter. Units are in ug/L. Dilution WLAa formulas for streams:

$$\text{WLAa} = (\text{Cr}/\text{Dilution Factor}) - \frac{(\text{Fs} \times \text{Qrc} \times 0.6463 \times \text{Cu})}{\text{Qe}}$$

Dilution WLAa formulas for static water bodies:

$$\text{WLAa} = (\text{Cr} - \text{Cu})/\text{Dilution Factor}$$

Cr represents aquatic acute numerical criteria from column (*8).

If Cu data is unavailable or inadequate, assume Cu=0.

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If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDL's, then a blank shall appear in this column.

- (*13) Wasteload Allocation for chronic aquatic criteria (WLAc). Dilution type WLAc is calculated in accordance with the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". Negative values indicate that the receiving water is not meeting the chronic aquatic numerical criteria for that parameter. Units are in ug/L. Dilution WLAc formula:

$$WLAc = (Cr/Dilution\ Factor) - \frac{(Fs \times Qrc \times 0.6463 \times Cu)}{Qe}$$

Dilution WLAc formulas for static water bodies:

$$WLAc = (Cr-Cu)/Dilution\ Factor)$$

Cr represents aquatic chronic numerical criteria from column (*9).

If Cu data is unavailable or inadequate, assume Cu=0.

If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDL's, then a blank shall appear in this column.

- (*14) Wasteload Allocation for human health criteria (WLAh). Dilution type WLAh is calculated in accordance with the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". Negative values indicate that the receiving water is not meeting the human health numerical criteria for that parameter. Units are in ug/L. Dilution WLAh formula:

$$WLAh = (Cr/Dilution\ Factor) - \frac{(Fs \times Qrc \times Qrh \times 0.6463 \times Cu)}{Qe}$$

Dilution WLAh formulas for static water bodies:

$$WLAh = (Cr-Cu)/Dilution\ Factor)$$

Cr represents human health numerical criteria from column (*10).

If Cu data is unavailable or inadequate, assume Cu=0.

If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDL's, then a blank shall appear in this column.

- (*15) Long Term Average for aquatic numerical criteria (LTAA). WLAA numbers are multiplied by a multiplier specified in the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards" which is 0.32. $WLAA \times 0.32 = LTAA$.

If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDL's, then a blank shall appear in this column.

- (*16) Long Term Average for chronic numerical criteria (LTAc). WLAc numbers are multiplied by a multiplier specified in the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards" which is 0.53. $WLAc \times 0.53 = LTAc$.

If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDL's, then a blank shall appear in this column.

- (*17) Long Term Average for human health numerical criteria (LTAh). WLAh numbers are multiplied by a multiplier specified in the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards" which is 1. $WLAh \times 1 = LTAh$.

If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDL's, then a blank shall appear in this column.

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- (*18) Limiting Acute, Chronic or Human Health LTA's. The most limiting LTA is placed in this column. Units are consistent with the WLA calculation. If standards are being applied at end-of-pipe, such as in the case of certain TMDL's, then the type of limit, Aquatic or Human Health (HH), is indicated.
- (*19) End of pipe Water Quality Based Limit (WQBL) monthly average in terms of concentration, ug/L. If aquatic life criteria was the most limiting LTA then the limiting LTA is multiplied by 1.31 to determine the average WQBL ($LTA_{\text{limiting aquatic}} \times 1.31 = WQBL_{\text{monthly average}}$). If human health criteria was the most limiting criteria then $LTA_h = WQBL_{\text{monthly average}}$. If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDL's, then either the human health criteria or the chronic aquatic life criteria shall appear in this column depending on which is more limiting.
- (*20) End of pipe Water Quality Based Limit (WQBL) daily maximum in terms of concentration, ug/L. If aquatic life criteria was the most limiting LTA then the limiting LTA is multiplied by 3.11 to determine the daily maximum WQBL ($LTA_{\text{limiting aquatic}} \times 3.11 = WQBL_{\text{daily max}}$). If human health criteria was the most limiting criteria then LTA_h is multiplied by 2.38 to determine the daily maximum WQBL ($LTA_{\text{limiting aquatic}} \times 2.38 = WQBL_{\text{daily max}}$). If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDL's, then either the human health criteria or the acute aquatic life criteria shall appear in this column depending on which is more limiting.
- (*21) End of pipe Water Quality Based Limit (WQBL) monthly average in terms of mass, lbs/day. The mass limit is determined by using the mass balance equations above. $\text{Monthly average WQBL, ug/l/1000} \times \text{facility flow, MGD} \times 8.34 = \text{monthly average WQBL, lbs/day}$.
- (*22) End of pipe Water Quality Based Limit (WQBL) monthly average in terms of mass, lbs/day. Mass limit is determined by using the mass balance equations above. $\text{Daily maximum WQBL, ug/l/1000} \times \text{facility flow, MGD} \times 8.34 = \text{daily maximum WQBL, lbs/day}$.
- (*23) Indicates whether the screened effluent value(s) need water quality based limits for the parameter of concern. A "yes" indicates that a water quality based limit is needed in the permit; a "no" indicates the reverse.

Appendix C

MEMORANDUM

TO: Jenniffer Sheppard

FROM: Todd Franklin

DATE: July 17, 2008

RE: Stream Flow and Water Quality Characteristics for the Mississippi River, receiving water for the ConocoPhillips Company / The Alliance Refinery (Permit No. LA0003115, AI: 2418)

Determinations of water quality characteristics for Outfall 001 were taken from ambient monitoring station #320 on the Mississippi River, south of Belle Chasse, Louisiana.

The following results were obtained:

Average hardness = 152 mg/l
15th percentile TSS = 16 mg/l

In accordance with a memo from Max Forbes to Bruce Fielding, dated April 29, 2002, the 7Q10 at this location has been determined to be 141,955 cfs and the harmonic mean flow has been determined to be 366,748 cfs.

If you have additional questions or comments, please contact me at 2-3102.

Appendix D

FRESHWATER ACUTE

BIOMONITORING FREQUENCY RECOMMENDATION AND RATIONALE FOR ADDITIONAL REQUIREMENTS

Permit Number: **LA0003115**
 Facility Name: **ConocoPhillips Company/Alliance Refinery**
 Previous Critical Biomonitoring Dilution: **1.155% (10:1 ACR)**
 Proposed Critical Biomonitoring Dilution: **1.1% (10:1 ACR)**
 Date of Review: **07/16/08** Name of Reviewer: **Laura Thompson**

Recommended Frequency by Species:

***Pimephales promelas* (Fathead minnow):** **Once/Quarter¹**
***Daphnia pulex* (water flea):** **Once/Quarter¹**

Recommended Dilution Series: **0.46%, 0.62 %, 0.83%, 1.1%, and 1.5%**

Number of Tests Performed during previous 5 years by Species:

***Pimephales promelas* (Fathead minnow):** **5**
***Daphnia pulex* (water flea):** **4**
***Ceriodaphnia dubia* (water flea):** **1**

Number of Failed Tests during previous 5 years by Species:

***Pimephales promelas* (Fathead minnow):** **No failures on file during the past 5 years**
***Daphnia pulex* (water flea):** **No failures on file during the past 5 years**
***Ceriodaphnia dubia* (water flea):** **No failures on file during the past 5 years**

Failed Test Dates during previous 5 years by Species:

***Pimephales promelas* (Fathead minnow):** **No failures on file during the past 5 years**
***Daphnia pulex* (water flea):** **No failures on file during the past 5 years**
***Ceriodaphnia dubia* (water flea):** **No failures on file during the past 5 years**

Previous TRE Activities: **N/A – No previous TRE Activities**

¹ If there are no lethal effects demonstrated after the first year of quarterly testing, the permittee may certify fulfillment of the WET testing requirements in writing to the permitting authority. If granted, the biomonitoring frequency for the test species may be reduced to not less than once per year for the less sensitive species (usually *Pimephales promelas*) and not less than twice per year for the more sensitive species (usually *Daphnia pulex*). Upon expiration of the permit, the biomonitoring frequency for both species shall revert to once per quarter until the permit is re-issued.

FRESHWATER ACUTE

Additional Requirements (including WET Limits) Rationale / Comments Concerning Permitting:

ConocoPhillips Company/Alliance Refinery owns and operates a petroleum refinery twelve miles south of Belle Chasse, Plaquemine Parish, Louisiana. LPDES Permit LA0003115, effective January 1, 2004, contained freshwater acute biomonitoring as an effluent characteristic of Outfall 001 for *Daphnia pulex* and *Pimephales promelas*. The effluent series consisted of 0.4872%, 0.6496%, 0.8662%, 1.155%, and 1.54% concentrations, with the 1.155% effluent concentration being defined as the critical dilution. The testing was to be performed annually for *Daphnia pulex* and *Pimephales promelas*. Data on file indicate that the permittee has complied with the biomonitoring requirements contained in LA0003115 with no failures from a toxicity test in the last five years.

It is recommended that freshwater acute biomonitoring continue to be an effluent characteristic of Outfall 001 (combined discharge of 33.7 mgd from Internal Outfalls 101, 201, 301, and 401) in LA0003115. The effluent biomonitoring dilution series shall be 0.46%, 0.62 %, 0.83%, 1.1%, and 1.5% concentrations, with the 1.1% effluent concentration being defined as the critical biomonitoring dilution. In accordance with the Environmental Protection Agency (Region 6) WET testing frequency acceleration(s), the biomonitoring frequency shall be once per quarter for *Daphnia pulex* and *Pimephales promelas*. If there are no significant lethal effects demonstrated at or below the critical biomonitoring dilution during the first four quarters of testing, the permittee may certify fulfillment of the WET testing requirements to the permitting authority and WET testing may be reduced to not less than once per six months for the more sensitive species (usually *Daphnia pulex*) and not less than once per year for the less sensitive species (usually *Pimephales promelas*) for the remainder of the term of the permit. Upon expiration of the permit, the biomonitoring frequency for both test species shall revert to once per quarter until the permit is re-issued.

This recommendation is in accordance with the LDEQ/OES Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, Water Quality Management Plan Volume 3. Version 6 (April 16, 2008), and the Best Professional Judgment (BPJ) of the reviewer.

Appendix E

Appendix E
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This appendix includes a description of all outfalls and the location within the LPDES application where this information was derived.

Outfall 001 - the continuous discharge of the combined plant effluent from Internal Outfalls 101, 201, 301, and 401.

Outfall description was taken from a combination of the Section 2 Summary of Wastewater Discharges in the June 24, 2008 LPDES application submittal and the Form 2-C pages in Appendix B of the same submittal.

WASTE STREAMS	FLOW (MGD)	DOCUMENT LOCATION
Internal Outfall 101	3.6	See Individual Outfall Information for document locations.
Internal Outfall 201	28.8	See Individual Outfall Information for document locations.
Internal Outfall 301	0.6	See Individual Outfall Information for document locations.
Internal Outfall 401	0.7	See Individual Outfall Information for document locations.
Total	33.7	Max 30-Day flow presented in the Appendix B Analytical Results for Outfall 001, presented in the June 24, 2008 LPDES application submittal

Internal Outfall 101 - the continuous discharge of treated process wastewater and process area stormwater, cooling tower blowdown, boiler blowdown, ion exchange resin bed backwash water, ballast water, desalter washwater, miscellaneous utility wastewater, stormwater from construction activities, compressor condensate, hydrostatic test water, general washdown water, steam condensate, fire systems test and training water, eyewash/safety shower water, and sanitary wastewater.

Outfall description was taken from a combination of the Section 2 Summary of Wastewater Discharges in the June 24, 2008 LPDES application submittal and the Form 2-C pages in Appendix B of the same submittal.

WASTE STREAMS	FLOW (MGD)	DOCUMENT LOCATION
Process Wastewater	1.89	Form 2-C pages in Appendix B and Figure 3 Wastewater Block Flow Diagram presented in the June 24, 2008 LPDES application submittal.
Process Area Stormwater	1.11	Form 2-C pages in Appendix B and Figure 3 Wastewater Block Flow Diagram presented in the June 24, 2008 LPDES application submittal.

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WASTE STREAMS	FLOW (MGD)	DOCUMENT LOCATION
Cooling Tower Blowdown	0.39	Form 2-C pages in Appendix B and Figure 3 Wastewater Block Flow Diagram presented in the June 24, 2008 LPDES application submittal.
Boiler Blowdown and Ion Exchange Resin Bed Backwash Water	0.08	Form 2-C pages in Appendix B and Figure 3 Wastewater Block Flow Diagram presented in the June 24, 2008 LPDES application submittal.
Ballast Water	0.007	Form 2-C pages in Appendix B and Figure 3 Wastewater Block Flow Diagram presented in the June 24, 2008 LPDES application submittal.
Desalter Washwater	0.62	Form 2-C pages in Appendix B and Figure 3 Wastewater Block Flow Diagram presented in the June 24, 2008 LPDES application submittal.
Miscellaneous Utility Wastewater	de minimus	Form 2-C pages in Appendix B from the June 24, 2008 LPDES application submittal.
Compressor Condensate	de minimus	Form 2-C pages in Appendix B from the June 24, 2008 LPDES application submittal.
Hydrostatic Test Water	de minimus	Form 2-C pages in Appendix B from the June 24, 2008 LPDES application submittal.
General Washdown Water	de minimus	Form 2-C pages in Appendix B from the June 24, 2008 LPDES application submittal.
Steam Condensate	de minimus	Form 2-C pages in Appendix B from the June 24, 2008 LPDES application submittal.
Stormwater from Construction Activities	de minimus	Form 2-C pages in Appendix B from the June 24, 2008 LPDES application submittal.
Fire Systems Test and Training Water	de minimus	Form 2-C pages in Appendix B from the June 24, 2008 LPDES application submittal.
Eyewash/Safety Shower Water	de minimus	Form 2-C pages in Appendix B from the June 24, 2008 LPDES application submittal.

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WASTE STREAMS	FLOW (MGD)	DOCUMENT LOCATION
Sanitary Wastewater	0.01	Form 2-C pages in Appendix B and Figure 3 Wastewater Block Flow Diagram presented in the June 24, 2008 LPDES application submittal.
Losses	-0.507	Form 2-C pages in Appendix B and Figure 3 Wastewater Block Flow Diagram presented in the June 24, 2008 LPDES application submittal.
TOTAL FLOW	3.6	Max 30-Day flow presented in the Appendix B Analytical Results for Internal Outfall 101, presented in the June 24, 2008 LPDES application submittal.

Applicable Guidelines for Internal Outfall 101:

Manufacturing Operation
 Refinery

Guideline
 40 CFR 419, Subpart B

Other Considerations for Internal Outfall 101:

Stormwater from construction activities is listed as an authorized discharge under this outfall. However, it is only applicable to construction in existing process areas or on existing structures. Any construction occurring in new/expanded process areas shall apply/obtain the appropriate stormwater general permit for construction activities (LAR100000 or LAR200000).

Internal Outfall 201 - the continuous discharge of once through non-contact cooling water.

Outfall description was taken from a combination of the Section 2 Summary of Wastewater Discharges in the June 24, 2008 LPDES application submittal and the Form 2-C pages in Appendix B of the same submittal.

WASTE STREAMS	FLOW (MGD)	DOCUMENT LOCATION
Once Through Non-Contact Cooling Water	28.8	Max 30-Day flow presented in the Appendix B Form 2-C and the Analytical Results pages for Internal Outfall 201 of the June 24, 2008 LPDES application submittal.

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Internal Outfall 301 - the intermittent discharge of non-process area stormwater runoff, boiler blowdown, ion exchange resin bed backwash water, general washdown water, steam condensate, fire systems test and training water, and eyewash/safety shower water.

Outfall description was taken from a combination of the Section 2 Summary of Wastewater Discharges in the June 24, 2008 LPDES application submittal and the Form 2-C pages in Appendix B of the same submittal.

WASTE STREAMS	FLOW (MGD)	DOCUMENT LOCATION
Non-Process Area Stormwater	variable	Form 2-C pages in Appendix B from the June 24, 2008 LPDES application submittal.
Boiler Blowdown	0.3	Form 2-C pages in Appendix B from the June 24, 2008 LPDES application submittal.
Ion Exchange Resin Bed Backwash Water	de minimus	Form 2-C pages in Appendix B from the June 24, 2008 LPDES application submittal.
General Washdown Water	de minimus	Form 2-C pages in Appendix B from the June 24, 2008 LPDES application submittal.
Steam Condensate	de minimus	Form 2-C pages in Appendix B from the June 24, 2008 LPDES application submittal.
Fire Systems Test and Training Water	de minimus	Form 2-C pages in Appendix B from the June 24, 2008 LPDES application submittal.
Eyewash/safety shower water	de minimus	Form 2-C pages in Appendix B from the June 24, 2008 LPDES application submittal.
Losses	-0.09	Form 2-C pages in Appendix B from the June 24, 2008 LPDES application submittal.
TOTAL	0.6	Permit Writer Calculation using known Max 30-Day values for Outfalls 001, 101, 201, and 401.

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Internal Outfall 401 - the continuous discharge of the clarifier underflow stream from the raw river water intake clarification system and sand filter backwash water.

Outfall description was taken from a combination of the Section 2 Summary of Wastewater Discharges in the June 24, 2008 LPDES application submittal and the Form 2-C pages in Appendix B of the same submittal.

WASTE STREAMS	FLOW (MGD)	DOCUMENT LOCATION
clarifier underflow and sand filter backwash water	0.7	Form 2-C pages in Appendix B and Figure 3 Wastewater Block Flow Diagram presented in the June 24, 2008 LPDES application submittal.

Outfall 002 - the intermittent discharge of low contamination potential excess stormwater runoff from non-process areas, post first flush process area stormwater (rainfall in excess of one inch within in a 24-hour period), general washdown water, steam condensate, fire systems test and training water, and eyewash/safety shower water from the Central Lift Station.

Outfall description was taken from a combination of the Section 2 Summary of Wastewater Discharges in the June 24, 2008 LPDES application submittal and the Form 2-C pages in Appendix B of the same submittal.

WASTE STREAMS	FLOW (MGD)	DOCUMENT LOCATION
Stormwater and Utility	Intermittent	Section 2 Summary of Wastewater Discharges in the June 24, 2008 LPDES application submittal

Outfall 003 - the intermittent discharge of low contamination potential excess stormwater runoff from non-process areas, general washdown water, steam condensate, fire systems test and training water, and eyewash/safety shower water from the North Lift Station.

Outfall description was taken from a combination of the Section 2 Summary of Wastewater Discharges in the June 24, 2008 LPDES application submittal and the Form 2-C pages in Appendix B of the same submittal.

WASTE STREAMS	FLOW (MGD)	DOCUMENT LOCATION
Stormwater and Utility	Intermittent	Section 2 Summary of Wastewater Discharges in the June 24, 2008 LPDES application submittal

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Outfall 004 - the intermittent discharge of low contamination potential excess stormwater runoff from non-process areas, general washdown water, steam condensate, fire systems test and training water, and eyewash/safety shower water from the South Lift Station.

Outfall description was taken from a combination of the Section 2 Summary of Wastewater Discharges in the June 24, 2008 LPDES application submittal and the Form 2-C pages in Appendix B of the same submittal.

WASTE STREAMS	FLOW (MGD)	DOCUMENT LOCATION
Stormwater and Utility	Intermittent	Section 2 Summary of Wastewater Discharges in the June 24, 2008 LPDES application submittal